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## THE CUNARD CO.'S ANNUAL MEETING.

At the annual meeting of the Cunard Steamship Co., held on April 18, the chairman, William Watson, said:

"It is with great pleasure that I am today able to congratulate you and all the shareholders on the successful result of the working of the company for the year 1906. Each branch of our trade shows an increase of business over that of the previous year, and we trust that this improvement will be continued, and that each successive year will show that the policy of progress which the company has inaugurated is a bold but wise and prudent one.

"The figures of our report show a revenue of £2,270,000 (I will only deal with round figures as you have the report before you), an increase of £496,000. As you can well understand our expenditure on this larger business must be greater, and is £1,176,000, an increase of £251,000. These increases were largely due to the increased tonnage put in the New York trade, and it is satisfactory to know that the increase of revenue was much more than the increase in expenditure. The most noteworthy items in the increased expenditure were repairs and renewals, office and agency expenses, and running expenses of the vessels, all of which were due, I repeat, to the increased tonnage brought into the trade, and to the consequent increased business done.

"Coming to the profit and loss account you will see that we have revenue account, sundry receipts and balance from 1905, amounting to £564,000. Out of that we have paid interest £36,000 on our indebtedness. We have put to the depreciation of ships account, £210,000—£35,000 more than last year, to depreciation of wharf properties £9,700 and

charged to insurance fund £3,700.

This leaves a net balance of £304,000, and that amount has been dealt with by transferring £120,000 to our insurance fund, which we wish to strengthen and to build up into a much larger figure, so that we may be able to run larger lines on our ships, and derive the profit which we consider will inure from our doing so. We have placed also £50,000 to the reserve fund, raising that fund to £200,000, and we have carried down a balance at the credit of profit and loss of £134,000. Out of this balance we recommend a dividend of 5 per cent, involving £80,001, and carrying over to next year's account £54,411. These figures, gentlemen, must, I think, be very satisfactory to you as they are to your directors. You will be well aware that the company is under considerable commitments, and your directors desire to build up its funds in view of such commitments.

"You will notice that we carry over a balance of £54,411 which is very much larger than we did last year or in any previous year. That we should carry over a large amount has been one of my desires for many years. I have had a great deal of experience, I may say, in dealing with the business of large companies, and this experience has taught me that it is a most wise and prudent measure to have a large reserve of a floating nature on which to draw when necessary without touching "reserves" which we wish to be considered of a more permanent character. Fluctuations in the business of a steamship company are inevitable, and a floating balance is a very useful factor in enabling us to meet any necessity that may arise, without touching, I repeat, our permanent reserves.

"The reduction of the acceptances on account of new ships from £1,-

190,000 to £660,000 is a very satisfactory feature in the accounts, and will reduce the amount incurred for interest during the present year.

"The company's offices in Cockspur street, London, having become too small for the business done there, the company has arranged for larger premises in the same street. The company has acquired the freehold of 29 and 30, and are having them rebuilt to suit their requirements.

"At New York the dock accommodation is insufficient to meet the company's increased tonnage, and larger piers have been hired from the city authorities on a satisfactory lease.

"Our ships have been run during the year without any serious damage. The two new fast ships, Lusitania and Mauretania, which are being built under the agreement with His Majesty's government, are approaching completion, and we hope to have them running in the course of a few months.

"It will be interesting to note that the value of the shares on the basis of the company's assets is £2,434,000, or an average of over £30 for each fully-paid share of £20.

"The relations of the company to its competitors are much the same as described to you in my speech at the last annual meeting, and I might well repeat them as showing the position of the company. Although there are no binding agreements as to rates, the various steamship companies are running at practically the same rates which obtained for 1905. While there have been rumors of one or two of our continental competitors contemplating a departure from these rates, they have so far remained practically undisturbed. We trust that this condition will be continued, as we cannot see that any company can hope to derive benefit from a departure from the understanding among us.

"I may say that overtures have been made to us from time to time to induce us to ally ourselves again with our continental competitors, but the terms suggested are not of a nature such as we think the Cunard company could consider. We wish to live at peace with our competitors, but it must be a peace which is based upon that share of the business which the Cunard company is entitled to. We trust that good counsels will prevail and that the friendly spirit we have shown in our dealings with our competitors may be reciprocated for the benefit of all. The shareholders may rely upon it that the directors will not make any change in the conditions now existing in relation to its competitors unless they see in such change that the interests of the Cunard company are upheld on a fair and equitable basis.

"The shareholders will have probably noticed in the press during the last few weeks, extracts from German and Austrian papers, containing statements alleging that the company had sold their interests in the Hungarian-American trade. The statements contained in such extracts are incorrect. I may say that our agreements with the Hungarian government exist as they always have done. They have not requested us to cancel the contract, and we have no reason to think that any pressure will be brought against us which would result in any unfairness to the company. The Hungarian government is perfectly loyal to its agreements, as, of course, is to be counted on, and we have not the least doubt will continue so.

"Naturally some curiosity may exist among you as to whether the Cunard company is following the suit of others in going to the channel ports. That curiosity, I trust, will be restrained. Whatever your directors deem best for the success of the company they will surely do, but all our best interests will be conserved by leaving the matter in abeyance for the present and making no pronouncement whatever."

The meeting unanimously adopted the balance sheet, and agreed to the payment of a dividend at the rate of 5 per cent per annum.

In view of the increasing responsibilities of the board, it was also decided to increase the directors' fees from £2,700 to £5,000.

The Western Transit Co. will equip its new steamers Wm. A. Rogers, Charles Weston, W. B. Kerr, Leland S. DeGraef and Wm. M. Mills with gasoline launches.

### THIRTEEN NEW VESSELS FOR NORTH GERMAN LLOYD.

According to a report just received by Gustav H. Schwab, the New York representative of the North German Lloyd Steamship Co., thirteen steamers are now under construction for that company. Some of these ships are nearing completion and others have only recently been begun, and will not be afloat for many months.

When these thirteen new steamers are completed the entire fleet of the North German Lloyd Steamship Co. will consist of 197 steamers, two school ships for the education of officers for the service of the company and 182 lighters and barges, all of which will have a tonnage of 786,510 tons gross register and 599,609 indicated horsepower.

The report contains some interesting information concerning the Kronprinzessin Cecilie, a new express steamer being built for the North German Lloyd by the Vulcan Ship Building Co., of Stettin, which is to be added to the express service between New York, Plymouth, Cherbourg and Bremen. This vessel is of 20,000 tons gross register, and will have an indicated horsepower of 45,000. She will make her maiden trip to this country in August. The Vulcan Ship Building Co., the report shows, is also building for the North German Lloyd a large passenger and freight steamer of 27,000 tons gross register and 20,000 indicated horsepower. The Tecklenborg Ship Building Co. in Geestemunde, is building a passenger and freight steamer of the Barbarossa type, of 17,000 tons gross register and 14,000 I. H. P. The Weser Ship Building Co. in Bremen is building a passenger and freight steamer of 17,000 tons gross register and 14,000 I. H. P., and the Imperial Mail steamships Coben and Lutzow, both of 9,000 tons gross register and 6,600 I. H. P.

Besides these ships under construction for the North German Lloyd, the Schichau Ship Building Co. of Elbing, Germany, in Danzig, is also building a steamer for the Imperial Mail service to the east of the North German Lloyd, 9,000 tons gross register and 6,600 I. H. P. Two freight and passenger steamers of 6,000 tons gross register and 3,300 I. H. P. are being built for the Lloyd by the Vulcan Ship Building Co. of Bremen, and two freight steamers of 5,600 tons gross register and 2,650 I. H. P. are being built by the same concern for the Lloyd.

The report received by Mr. Schwab also shows that the ship building company of Henry Koch, in Lubeck, is

constructing two freight steamers for the China Coast service of the North German Lloyd, each of which will be of 1,650 tons gross register, and will have an indicated horsepower of 750.

### LA VELOCE LINER EUROPA.

The newest addition to the fleet of La Veloce liners, the twin-screw steamship Europa, arrived in New York with 100 cabin passengers and 1,800 in the steerage. The vessel left Naples 12 days before on her maiden voyage. That she will prove as popular as the other vessels of the line is confidently expected, as she has been built expressly for the trans-Atlantic service between Italy and the United States and her cabin accommodations are most elaborate. The staterooms are spacious and airy, having two, four and six berths each.

The Europa was constructed in the Florio ship yards at Palermo, Sicily, and her boilers and engines were furnished by the well known firm of Ansaldo, Armstrong & Co., of Genoa. Her maximum length is 450 feet, maximum breadth, 55 feet, gross tonnage is 7,000 tons; her displacement, 10,400 tons. Her engines develop 6,000 horsepower, giving an average speed of seventeen knots per hour, which was very satisfactorily proven in her recent trials.

### OF INTEREST TO IMPORTERS.

San Francisco importers of European goods learned with much interest of a new arrangement entered into between the steamship and railroad lines. Commencing on Jan. 1, 1907, all through rates from European points to San Francisco were changed, in that they were made applicable only by way of Galveston and New Orleans, the through rate not obtaining by way of New York and Boston. This disadvantage results in great dissatisfaction among San Francisco merchants and in shipping circles generally. However, by a new arrangement the old rates will be re-established, making the through rates from Europe applicable via New York and Boston.

The steamer Byron Whitaker with corn from Chicago, was sunk about 300 ft. below the head of Bois Blanc Island in collision with the steamer John C. Gault. Capt. Harris W. Baker of Detroit, immediately undertook the work of raising her with the wrecker Snook. Vessels had no trouble in passing the steamer in daylight, but Col. Davis, government engineer, ordered navigation past the sunken steamer to be suspended during the night time.

### MANCHESTER CANAL.

An example of how essential proper facilities are to build up the commerce of a port is furnished by statistics just available from the records of the Manchester ship canal. These show a remarkably steady increase in receipts and traffic. During the year 1906 the receipts had arisen from £445,203 in the year 1905 to £494,302, whilst the tonnage passing over the waterway increased from 4,253,354 tons in 1905 to 4,700,924 tons in 1906. In 1894, the first year the canal was opened—the tonnage was 925,659 tons, and revenue £97,901. The imported commodities which showed the principal increase last year were timber, grain, fruit and provisions, whilst among the exports coal, machinery, pitch and creosote figured more largely than hitherto.

The canal seems really one vast dock thirty-six miles in length. It forms the terminal port for seven of the leading railways of the United Kingdom, possesses forty locomotives, 1,450 railway wagons, sidings to accommodate 9,000 wagons, with 129 miles of line—of which sixty miles are at the docks—direct railway access alongside of every berth in the port. Its resources are unique. The Dock Estate has nine docks and covers an area of 406½ miles in length. The docks vary from 560 to 2,700 ft. in length and from 120 to 250 ft. in breadth, one great advantage being that vessels can move from one to another irrespective of tide or weather. The smooth water space available for barging, rafting, pontooning and coasters for alongside work is practically unlimited. There are thirteen single-floor, one two-floor, six three-floor, five four-floor and twelve five-floor transit sheds, fitted with the most modern appliances.

The additional accommodation provided by the new dock at Manchester, which was opened by their Majesties the King and Queen in 1905, has proved very welcome both to the canal company and traders.

The dock is 2,700 ft. in length and along one side there is a range of four floored ferro-concrete transit sheds equipped with electric cranes and every facility for the handling of traffic.

Although the canal has up to the present been of little direct benefit as a dividend earner to its promoters, the prospects of a dividend are now very much brighter than they were and meantime the canal has been and is of enormous use to the trade and industry of the north of England

and to distant producers and foreign markets. It has vigorously encouraged exports of every kind—of coal, manufactured iron and steel, textile and other machinery, electric traction equipment and appliances, and all sorts of Manchester goods—for directly owing to the policy of the ship canal company the railway companies have been obliged to ease their carriage charges and the Mersey board have been impelled, in their own interests, to reduce their dock and harbor dues. It has also given an enormous fillip to imports, bringing raw cotton from America, Egypt and British fields to the threshold of the Lancashire mills, and grain, timber, iron ore, pig iron, lead, oil, fruit, flour, foodstuffs, sugar, meat and cattle in abundance from foreign ports, to many of which there are now regular steamship lines, with owners and agents in Manchester.

Owing to the reduced cost and handling of traffic, Manchester now secures a large proportion of the immense shipments of leather from Boston and other North American ports. A good deal of the leather is sent forward direct from ship to the Northampton and Leicester districts, whilst large stocks are retained at the Manchester docks, several of the largest importing merchants having centralized the whole of their leather stocks at Manchester in preference to other ports, and serving from thence not only the Midlands, but also Glasgow, Bristol and other coastal ports. Hides, extracts and other raw materials connected with the tanning industry are brought to Manchester by the steamers arriving from Australia, River Plate, North America, Bordeaux, Jamaica and other ports.

### IMMIGRATION HEAD TAX.

The immigrant faces an increase in steerage rates from Europe within six weeks when the United States law increasing the head tax from \$2 to \$4 for every alien entering the country goes into effect. While the steamship companies have always added the head tax to the cost of transportation they have avoided criticism and complaint by materially improving steerage service and conditions, so that today the humble new-comer from other shores travels in no mean style and comfort below decks of the big Atlantic steamships. The giant White Star liner *Adriatic*, recently in port from her maiden voyage, has a smoking saloon, recreation room for women and chil-

dren and promenade deck all for steerage passengers.

With the improvement in the steerage, which has taken place within the last few years, many companies have dropped the name *steerage* and now designate it as the "third class," which today compares with the second class of a decade ago. Travel to Europe has greatly increased in the steerage because of these improved conditions.

The manager of the third class department in one of the large trans-Atlantic lines said yesterday that the change in the steerage had benefited companies because it had increased travel. Formerly steerage passengers were herded below decks like cattle. Large rooms were set apart for the sexes and married couples, and as many as forty and fifty persons slept in one room. The companies furnished only the bare berth and food and each passenger had to purchase a straw mattress, a tin dish, cup and knife and fork before leaving the docks. The mattress was thrown overboard at the end of the trip. When meal time came a large cauldron was brought into the dining room and the hungry immigrants turned in and helped themselves. Hunks of bread were thrown down beside the cauldron, and in the scramble for food there were frequent desperate fights between the passengers.

But competition between the English and German lines for the immigrant trade gradually brought about better conditions in the steerage, and trans-Atlantic steamships today give comfortable berths and bedding to each steerage passenger. Married couples are given a room and in no case are more than six persons housed in one room. Meals are well-cooked, wholesome food is served at long tables covered with clean linen and the companies provide all table utensils. Some of the steamships have revolving chairs in the steerage dining room. Bathrooms are provided and there are recreation rooms for women and children, where may be found newspapers and magazines. A promenade deck and covered deck for stormy weather give the steerage passengers ample opportunity to get the air and stewards wait on steerage passengers at their meals. The steerage passengers have a different menu for their meals each day during the trip.

Another marked reform is that first and second class passengers are no longer permitted to roam through the steerage and gaze curiously at the

immigrant as an object of interest. The sanitary arrangements are excellent and the closest medical supervision is observed. Twice a day the ship's surgeon goes through the steerage accompanied by the captain, and any passenger found suffering from a contagious disease is quarantined. Formerly disease spread unchecked in the steerage. The Italian government sends a government surgeon on every ship leaving for America, and stipulates that the steamship company shall furnish a certain amount of meat every day to each passenger. Recently a captain of one of the German lines, having a port of entry in Italy, was arrested because he gave his passengers more meat than the law designated. The prosecuting officer said that the captain was aiding and abetting glutony.

#### AN ANCIENT CHARTER PARTY.

The mayor of Gravesend, England, sends to the *London Times*, the following copy of a charter party—probably the oldest extant—of which he holds the original:

"Know all those who shall see and hear this charter that Sir Hugh de Berham, in the name and place of Sir Adam de Limbergue, constable of the castle of Bordeaux, and on behalf of our lord and king of England, duke of Guienne, and in the name and place of our said lord the king, and duke, has freighted and ladened at Bordeaux, the Coq, "our Lady of Lyme," of Walter Giffard, the master, 93 tuns and 18 pipes of wine, whereof are one tun four pipes of stock wine, and 44 tuns of flour, to go to Newcastle-on-Tyne straightway, for nine shillings of good crown sterlings of England, each tun of freight at the rate of 21 tuns one pipe for 20, and the residue of the pipes two for the freight of one Tun. For which freights the said master acknowledges that he was paid in the sum of £7 2s of good crown sterlings of England in part payment of the said freight, and held himself thereof well paid. And within fifteen days, counting one day after another, after God, he shall have conducted and brought the said ship across to safety to her right discharge. The wine and flour shall be discharged and the master paid for all his freight without any delay and any demurrage. Towage and petty lademanage are on the merchants. And when the ship left Bordeaux the master and the merchants were in good peace, and in good love, and without any quarrel. That is to say, the eighth

day from the end of May A. D. 1322, King Charles reigning in France, Edward reigning in England, duke of Guienne ( \* \* \* ), archbishop of Bordeaux. Witnesses, Richard Esparver, Thomas Rosen, P. Mauran, John de Rosordo, and that John Alcin, notary public of the Duchy of \* \* \* of June, which P. Mauran, registrar of charters, wrote by my will +." The parchment bears the following endorsement: "Sum of the freight of the ship of Walter Giffard, master of the ship, the St. Mary Coq of Lyme, £53 11s, of which are paid by A. de Limbergue £7 2s, and by Polhowe £46 10s. He delivered to Polhow 86 tuns of wine and 43 tuns of flour, and there are wanting 16 tuns of wine."

WALTER J. BALLARD.

#### SHIPS THAT PASSED IN THE FOG.

The following communication which was published in the *New York Sun* is of interest to every one aboard ship: I have noticed in the *Sun* of May 9 an account of the meeting of the North German Lloyd R. M. S. Kaiser Wilhelm II and the German protected cruiser Bremen, and should esteem it a great favor if you would allow me space in your valuable paper to give my account. Now, I witnessed the meeting of these two ships and would like to give my own opinion as a sailor of experience in this matter, and hope it will be received in the spirit it is tendered, i. e., the opinion of a sailor on an ordinary nautical situation.

It was not what one would call a heavy fog at all, and vessels could be seen by a seaman, whose eyes are trained to this kind of work, at a distance of from one and a half to two miles (nautical).

The Bremen's foghorn was continually heard a good time before she was sighted, and consequently her location was fixed. This can be done by those who are practiced, but not by others.

The warship Bremen was painted white, and it is an acknowledged fact that it is much harder to fix distances with a white painted ship in a fog than a black painted one, hence the experienced man is to the fore again, and in this instance particularly so, as all the other vessels that had been sighted during the voyage were painted in dark colors.

I should give her distance, if asked in a court of law—as a nautical assessor, in which capacity I have acted on several occasions—as about one mile when first actually sighted, which please note was some little

time after she had been located, and never at less than 1,500 to 2,000 ft., and I also consider it was correct to keep up a good speed to enable the navigator to handle his vessel properly under the circumstances. In conclusion, without knowing who handled the ship, I wish to put on record that it was one of the smartest maneuvers I have ever witnessed, both in practice and theory, including all details, and were I a ship owner, whether the captain was in charge or any particular officer of the watch, I would very willingly put him in charge of my ship.

DUNCAN C. MACINTYRE,  
Commander, R. N. R.

Fall River, Mass., May 9.

#### SUBMARINE SIGNALS.

The *Shipping List and Lloyd's Gazette* (Liverpool) of March 19, commenting on the annual report of the North German Lloyd Co., says:

"The company has something to say about submarine bells, and an intimation is given that before long no fewer than four important points on the German coast will be provided with submarine signaling apparatus. It is apposite to remark that if ever the usefulness of this system was apparent a case was made for it by the wrecks in the English channel reported yesterday. The Suevic could hardly have got on the rocks had there been a submarine bell to warn her, and the same would probably have been the case with the *Jebba*. People may talk about this or that form of illuminant as being more especially suited to foggy weather, or of this or that explosive signal as being the best. But, when all is said and done, by far the simplest and most effective means of avoiding wreck is found in the submarine bell, which, indifferent to gale or the density of the atmosphere, repeats in the silent waters its warning note to the ship which may be heading to destruction."

The one-hundredth anniversary of the launching of its first vessel will be celebrated by the town of Searsport, Me., the coming summer. The first vessel built at Searsport was the schooner *Friendship*, launched in 1807. Of the 202 vessels built in Searsport, 33 were brigs, a rig now nearly obsolete in American registry. Searsport has built 15 ships, but the favorite rig of the old-time ship masters was the bark, of which Searsport has constructed 43. The first ship was the *B. Aymar*, of 516 tons, built in 1840; the first of more than 1,000 tons was the *Oneida* of 1,180 tons, built in 1866, while the last and largest was the *William H. Conner*, 1,496 tons, built in 1877.



## SUMMARY OF NAVAL CONSTRUCTION.

As far as numbers are concerned the naval program under construction exhibits a diminishing list. Only six battleships and four armored cruisers remain on the construction list. Following is the program:

the Missouri river between St. Louis and Kansas City within ninety days. At a recent meeting of the committee appointed to bring about this end, plans were made for the organization of a company to build and operate steamboats for the carrying of freight. While the boats are building an ar-

from all dues usually payable on provisions consumed aboard ship, materials for repairs and the maintenance working of the vessels and the docks. This is in return for establishing a number of lines of steamers to Panama, Valparaiso and other ports and for constructing a floating dry dock at Callao, capable of accommodating vessels up to 12,000 tons.

The new steamer Roanoke of the Neptune line, which was built by Messrs. Furniss, Withy & Co., West Hartlepool, for the Baltimore and Rotterdam trade, arrived at Baltimore recently. Two other steamers, the Rapidan and the Rotterdam, are under construction for the same line and will be in service sometime during the year. The Roanoke is 385 ft. long, 49 ft. beam and 28 ft. 8 in. deep, with a dead weight carrying capacity of about 7,000 tons. She has triple expansion engines with cylinder diameters of 25, 40 and 68 inches, and a 48-in. stroke of piston. Steam is furnished by three single-ended multibular boilers with three Morrison patent furnaces in each.

Owing to the fact that the Japanese crew can be hired for vastly less than an American one and that the cost for their food is far less, in addition to the fact that the Japanese government subsidizes its shipping, freight rates are being so reduced on the Pacific that eventually the Japanese will be supreme thereon. There were recently loaded or loading in the harbor at Portland, Ore., three Japanese steamships carrying Oregon and Washington wheat and flour to the orient at from \$3 to \$3.50 per ton, a rate which is at least one-third less than an American vessel could carry it even if subsidized. It would seem that the ship owners and seamen of this country have a right to be protected against cheap foreign labor in the same manner that the landmen are.

The boiler of the pioneer Pacific coast steamer Beaver, which was built on the Thames in 1835 for the Hudson's Bay Co., has recently been raised from the wreck of the vessel at the mouth of Burrard Inlet, where it has lain since July, 1888. It is proposed to preserve it as a relic at Vancouver, B. C. The boiler has other points of interest aside from its historical associations. It is 22 ft. 9 in. high, while its steam pressure is only 15 lbs. to the square inch; an upright superheater permits the heat from the furnace to pass through the center to superheat and dry the steam; it has double safety-valves, one for the escape of over steam pressure, the other as an intake or collapsible valve;

## BATTLESHIPS.

Name of Vessel.	Building at—	—1907—	
		Per cent of completion April 1.	May 1.
Nebraska .....	Moran Bros. Co.....	99.20	99.60
Mississippi .....	Wm. Cramp & Sons.....	81.38	84.69
Idaho .....	Wm. Cramp & Sons.....	73.66	78.11
New Hampshire .....	New York S. B. Co.....	64.70	67.90
South Carolina .....	Wm. Cramp & Sons.....	9.38	11.21
Michigan .....	New York S. B. Co.....	11.10	13.10

## ARMORED CRUISERS.

California .....	Union Iron Works .....	99.60	99.60
South Dakota .....	Union Iron Works .....	97.10	97.40
North Carolina .....	Newport News S. B. Co.....	75.81	78.80
Montana .....	Newport News S. B. Co.....	70.92	72.90

## SCOUT CRUISERS.

Chester .....	Bath Iron Works.....	71.90	75.58
Birmingham .....	Fore River S. B. Co.....	67.40	70.30
Salem .....	Fore River S. B. Co.....	68.30	72.10

## SUBMARINE TORPEDO BOATS.

Submarine T. B. No. 9.....	Fore River S. B. Co.....	91.50	92.50
Submarine T. B. No. 10.....	Fore River S. B. Co.....	90.60	91.60
Submarine T. B. No. 11.....	Fore River S. B. Co.....	92.50	93.50
Submarine T. B. No. 12.....	Fore River S. B. Co.....	90.42	91.40

## COLLIERS.

Vestal .....	Navy Yard, New York.....	11.85	16.90
Prometheus .....	Navy Yard, Mare Island.....	0.70	0.70

## TUG BOATS.

Patapsco .....	Navy Yard, Portsmouth.....		0.60
Patuxent .....	Navy Yard, Norfolk.....		4.50

## ITEMS OF GENERAL INTEREST.

The Hamburg-American Steam Packet Co.'s new steamer President Lincoln has just undergone a successful trial trip from Belfast. This vessel was built originally for the Leland line but was purchased by the Hamburg-American Steam Packet Co. She is of 18,000 tons capacity and will start on her maiden trip from Hamburg to New York June 1.

Fire broke out on Friday evening last on pier 34 North River, New York, used as a freight pier by the Morgan Line. The steamer Protus was lying alongside and was in much danger before she was towed out into the river. Fortunately she escaped with a slight scorching. The loss is quite heavy, estimated at \$500,000, and is only partly covered by insurance.

The national convention of the White and Black River Improvement Association was held at Newport, Ark., on Friday and Saturday last. The principal address was made by Joseph E. Ransdell, president of the National Rivers and Harbors Congress and a member of the committee on rivers and harbors of the house of representatives.

It is reported that freight-carrying boats will be in regular operation on

the Missouri river between St. Louis and Kansas City within ninety days. At a recent meeting of the committee appointed to bring about this end, plans were made for the organization of a company to build and operate steamboats for the carrying of freight. While the boats are building an ar-

angement may be made with Capt. T. B. Sims, of St. Louis, to put in operation a line of carrying boats, one boat to be put on at once if satisfactory arrangements can be completed. It will require from 90 to 120 days to build a boat. The Austro-American Steamship Co. will inaugurate its new Trieste-New Orleans service on June 15, by the sailing of the steamer Gerty from the latter port. The company will cater mainly to the freight and emigrant trade, although saloon accommodations will be provided for a small number of passengers on some of the steamers assigned to this route. The other vessels sailing in this route are the Eugenia and Giulia. The new twin-screw passenger and cargo steamers Laura and Alice will be added to the New York service to take the place of the three steamers which will ply in the service between New Orleans and Trieste.

The Peruvian National Steamship Co. has recently concluded an arrangement with the Peruvian government whereby the steamship company will receive annually 30,000 pounds sterling, exemption from all navigation dues in Peru, as well as from the trading license, registration, etc., and exemption

it being generally understood that as steam went down and out of the boiler, it was necessary to provide for the atmospheric pressure and thus prevent a collapse.

The steam yacht *Aurora*, now called the *Sabrina*, and owned by the Submarine Signal Co., of Boston, Mass., attended the opening of the Jamestown exposition. She was recently overhauled and equipped with a Roberts safety watertube boiler.

The French minister of marine has ordered the commencement of 16 submarines, all of the submersible type, similar to the 18 commenced in 1905. Their displacement is 398 tons, length 167 ft., beam 16 ft., draught of water 10 ft. The maximum power of the motors is 700 H. P., giving a surface speed of 12 knots. They will be fitted with seven launching apparatus for torpedoes, and are to have a complement of two officers and 22 men. Orders have also been issued for the construction of four submergibles of much greater dimensions than any built heretofore. The radius of action is designed to be much greater than hitherto attempted, namely, 2,500 miles. It is said that they are not to be identical but will have a displacement of about 800 tons, the surface speed to be 15 knots, which is two knots faster than any previous craft of this kind, and the submerged speed will be 10 knots instead of six.

The protected cruiser *New York*, the rebuilding of which is now almost completed at the Boston navy yard, has together with the armored cruiser *St. Louis* been ordered to the Pacific to replace the protected cruiser *Chicago* and the gunboat *Yorktown* of the Pacific fleet, while the cruisers *Denver* and *Cleveland*, at present in the sixth division of the Atlantic fleet, will, on the termination of their forthcoming visit to the Fulton celebration at Bordeaux, France, proceed to the Asiatic station to reinforce the already extensive fleet in those waters. The *New York* may go to the Pacific under another name, in order to permit of naming of one of the two great battleships of the Dreadnought class, recently authorized by Congress, after the Empire state. It is the impression that the *New York* will be renamed the *Trenton*. The other great battleship may be named the *Texas* thus giving to the vessels the names of the state of greatest population and the state of greatest area. The present battleship *Texas* is now almost obsolete.

The British fleet of naval vessels was reviewed at Portsmouth recently by the colonial premiers as the guests of the admiralty. Ten battleships, in-

cluding the Dreadnought, a score of cruisers and 37 torpedo-boat destroyers, were reviewed by the visiting statesmen, who were especially interested in the new battleship. In describing the Dreadnought the official program of the day says: "She has satisfied her creators and fulfilled all anticipations. When 80 per cent of her guns were first fired together, with a total energy of 345,792 foot tons, some cups and saucers were broken. All else withstood the immense concussion, and the difficult problem of preventing the blast of one gun from interfering with that of another was found to have been satisfactorily solved. She has completed a voyage of 10,000 miles and without using all her boiler power, maintained a speed of over 17 knots for 3,400 miles and could have done another thousand at the same speed."

In an address recently before the exporting and importing class of the West Side Y. M. C. A. of New York, Mr. William E. Peck, president of William E. Peck & Co., exporters, spoke in strong terms of the fact that in 1906 the United States bought twenty per cent of all the products South America shipped abroad, but sold to South America only thirteen per cent of the goods it bought. "Considering," he said, "that South America has a population of 40,000,000 and that the total amount of her foreign commerce is \$1,278,000,000, the figures show that we have relatively a small proportion of her trade. The reasons for this unsatisfactory growth of our trade may be found in the greater willingness of British and Continental manufacturers to adapt themselves and their products to the requirements and tastes of the Latin-American buyers, and to extend long credits. The average American manufacturer, on the other hand, has been, is, and I am afraid always will be, too apt to follow the theory that what is acceptable to the home trade should be good enough for any foreign buyer."

The Pittsburg Coal Co.'s dock at Pittsburg landing, St. Mary's river, is now ready for business. There is 22 ft. of water alongside the dock. During the present week 75 tons of fuel was put aboard the steamer *Kensington* in four minutes. The *Kensington* was downbound and a southeast gale was blowing hard, but the steamer experienced no trouble in making a landing at the dock without winding around.

For the first time in three years shippers are sending flaxseed to New York via the Erie canal.

## MARINE PATENTS.

- 848,297. Means for Retarding the Movements of Vessels. John Englund, Minneapolis, Minn.
- 848,457. Boat Propulsion. James J. Feeny, Saltville, Va.
- 848,615. Means for Effecting Escape of Occupants from Sunken Vessels. Isaac Fripp, Catford, England, assignor to James Watt, Catford, England.
- 845,813. Submarine Structure. Max E. Pester, Glen Cove, N. Y.
- 845,937. Steering and Propelling Mechanism for Boats. William H. Fahrney, Chicago, Ill.
- 845,949. Steering-Gear. Frank Y. Harrison, Detroit, Mich.
- 846,244. Hawse-Pipe. Charles Petrie, St. Johns, Newfoundland.
- 846,417. Propulsion of Submarine Vessels. Simon Lake, Bridgeport, Conn.
- 847,320. Folding Mushroom-Anchor. Charles E. Crane, Lake City, Minnesota.
- 847,481. Paddle-Wheel for Boats. Francisco D. Joy, Glendora, Cal.
- 850,967. Controlling Mechanism for Submarine Mines. Jean A. Rey, Paris, France.
- 851,072. Ship Cleaning Device. Robert B. Crump, Brooklyn, N. Y.
- 851,080. Vessel Positioning Device. Charles B. Erhart, Cincinnati, O., and Edward Galatti, Covington, Ky.
- 851,111. Apparatus for Cleaning Ships. Charles E. Arnold, Brunswick, Ga.
- 851,269. Vessel Construction. William W. Wotherspoon, New York, and Robert O. King, North Tonawanda, N. Y.
- 851,270. Method of Floating Sunken or Stranded Vessels. William W. Wotherspoon, New York, and Robert O. King, North Tonawanda, N. Y.
- 851,389. Boat Propelling Device. Cameron B. Waterman, Detroit, Mich., assignor to the Waterman Marine Motor Co., Detroit, Mich.
- 850,239. Boat Launching and Stowing Apparatus. Fred E. Martin, Oakville, Ont., Canada, assignor of one-third to William J. Kivell and two-thirds to Charles H. Riches, Toronto, Canada.
- 850,246. Device for Cleaning Ship Bottoms. John H. Pegram, Longspur, Va.
- 850,831. Submarine Boat. John J. Harpain, U. S. Navy.

## IMPROVEMENTS AT HURON.

Residents of Huron are looking forward to great things for that little port since the Wheeling & Lake Erie started in to make improvements by dredging a new slip, erecting new unloading machinery and increasing the

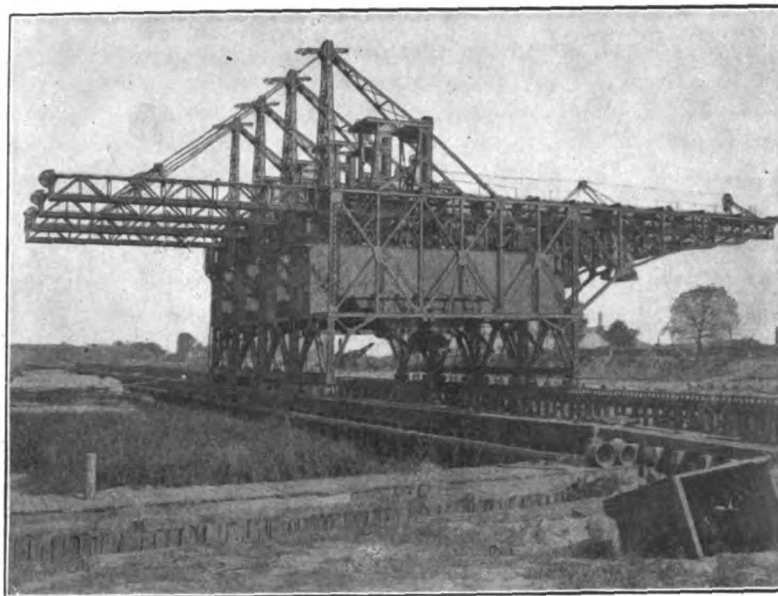
Buffalo and the east. The grain traffic afterwards centered at Milan.

Buffalo histories tell of the old time schooners bringing grain from Milan to Dart's elevator, and the way it came was by canal from Milan to the Huron river, thence by lake. There

and publishes the weekly *Erie County Reporter*. Among the boats built were the steamers Great Eastern and Ohio. The Great Eastern brought one of the first grain cargoes to Buffalo. When the Ohio was launched, people came for miles around to see it. Capt. W. C. Richardson, of Cleveland, owns the steamer Wm. Edwards and schooner Golden Age, which were also built at Huron. The Golden Age is laid up there this winter.

Mayor Clock has back files of the weekly *Commercial Advertiser*, edited by H. C. Gray, who died at Ashtabula last summer. In looking up the issues for 1837, it shows that boats were plying up and down the lakes as early as March 27. Lundy, Hickox & Co., advertised the "fast sailing schooner Commodore Lawrence" to leave Huron Wednesday, April 5, for Detroit. She carried freight and passengers. The "steam packet ship Columbus, Augustus Walker, Master," was also advertised for the run around the lake from Buffalo to Detroit, making the round trip in about six days. She was said to be "as fast as the fastest," and sometimes got on the upper lakes

Many captains formerly lived at Huron, but Capt. Henry Peterson, of the Shenango Steamship Co.; S. E. Meeker and C. A. Weitzman, of the Pittsburg Steamship Co., and C. Z. Weitzman, of the United States Transportation Co., are the only active



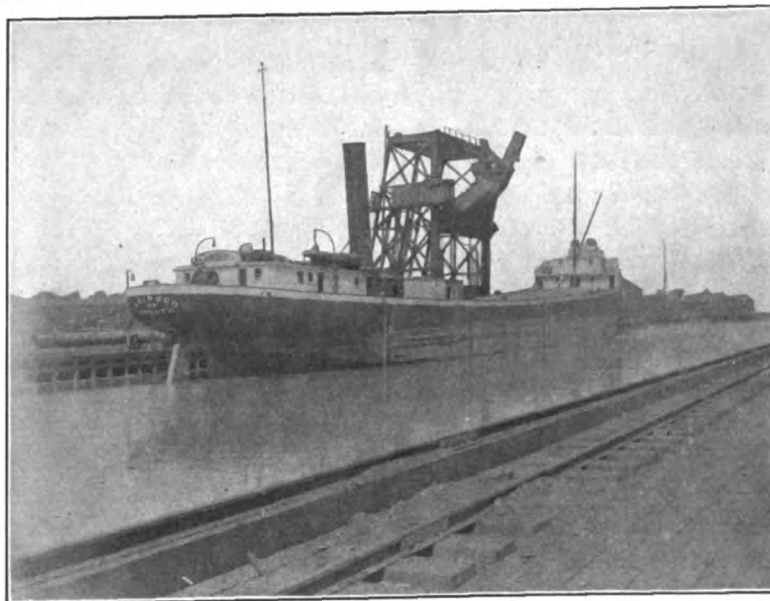
NEW WHEELING & LAKE ERIE SLIP AT HURON WITH WELLMAN-SEAVERMORGAN UNLOADERS.

road's yard space. They point to the fact that the 602-foot steamer Townsend came in and out without tugs last fall, and they think this is going some, as it most certainly is. She unloaded 10,390 tons of ore in eighteen hours, which makes a good record for the port.

There is no question but what Huron will increase in importance now with the new facilities. There is a McMyler car dump in both the new and old slip, and there are seventeen ore unloading machines. In the old slip are four hoisting and conveying legs with one McMyler and three Wellman - Seaver - Morgan automatic clamshells, while on the new, there are four 5-ton clam shell fast unloaders of the Wellman-Seaver-Morgan type. A twelve-ton portable conveyor for stock purposes is now being constructed. These improvements, altogether, figure at \$1,000,000.

As important as Huron is today, it is doubtful if it is more so than it was back in the thirties during the wayport passenger boat days. At that time, the clink of the ship builder's hammer could be heard up the river nearly as far as Milan, and the toot of the old-time passenger craft made things lively on the lower river. Farmers from down as far as Indiana kept things moving too by bringing grain in prairie schooners for shipment to

are no boats today which could carry cargoes from the inland town, but when the traffic was at its height, schooners did actually run the canal, thereby saving the farmers an eight



MCMYLER CAR DUMP IN THE OLD SLIP OF THE WHEELING & LAKE ERIE AT HURON.

mile additional haul. The company which operated the canal was not dissolved till last year.

In 1837, there were eight ship yards between the lake and Milan, according to Mayor T. M. Clock, who owns

skippers living there now. Capt. J. D. Peterson and Capt. Phil. Smith, retired, are residents.

Thomas Caniff, of Marine City, is mate on the steamer Anna C. Minch.



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### MARINE REVIEW COURSE FINDER.

The MARINE REVIEW has now in the course of preparation a work that will interest every master and mate on the great lakes. It will be particularly interesting on account of its great practical utility and the simple manner in which the work can be used. The book contains all the correct magnetic ranges and all the mean correct magnetic courses on the lakes, with an explanation of a simple method of making or finding the course to be steered between any points on the lakes. No matter what the course to any certain place may be by your compass the course finder will tell you what it is. No figures are required in the method, not even so much as a mental calculation being necessary. The course finder allows the variation and deviation for you so

that it is not even necessary to know the first thing about the laws of variation and deviation. It will be found just as necessary and convenient for the man who does understand all about compass corrections. It is a method that should be employed as a check in all azimuth work. It was designed as a makeshift for azimuths for when it is cloudy azimuths of heavenly bodies are not available. So long as the sky is not overcast azimuths supply one of the most important needs of lake navigation; but when it is cloudy and for several days at a time, as it often is, the navigator is up against a stiff proposition for making his courses. This is especially so when the deviations change with different trims of the boat. In cases of this kind the course finder will be found of the greatest assistance. The course finder will be found useful at all times, no matter what the conditions of the weather may be.

It has often been said by lake navigators that if the correct magnetic bearings of all the lighted ranges on the lakes were given it would be of the greatest assistance to the lake master for finding his compass deviations. The course finder has done this and a great deal more. No other work on the market will be found more useful to the lake master than the work to be performed by the course finder.

One of the greatest difficulties the lake navigator has in the use of his compass is the change in the deviation due to a change in the trim of his boat, such as being light, loaded, half loaded, etc. When azimuths are available the navigator can make them answer his purpose, but when they are not he must employ other means. It is the purpose of this work to take the place of azimuths when the sky is overcast.

Another feature of the work is the blank forms for tabulating the deviation of the compass on all the river ranges. This form indicates just how a compass should read when heading on that particular range, so that the difference between what the compass says and the correct magnetic bearing of the range is the deviation. In this

method there is no chance of confusing the variation with the deviation. In conjunction with this there is a deviation curve card for obtaining the deviation on those points of the compass for which there are no ranges. The practical utility of this card is that the greatest amount of the work has been done so that the navigator can obtain the deviation for any point or quarter point of the compass so desired, in a moment's notice. The entire method is so simple that any one must be able to understand it. The tabular forms and deviation curve blank are not essentials to the system, but they have been supplied, so that in the event of a master wishing to determine his own deviation and allowing it to his corrected course he has a ready means of doing so. The system recommends itself to favor more on account of its practical utility and simplicity than anything else. No great claim is made for the originality of the system, for it has and is being practiced every day, but it is the ease and convenience that the navigator can handle this part of his work that merits consideration if not commendation.

Practical men to whom the nature of the work has been explained, and those who have had an opportunity of looking over the typewritten copy for the book, have become very enthusiastic and urged its printing at the earliest possible moment. Several ship masters were so eager for a copy of the work that they offered the publisher \$25 for the privilege of having a copy typewritten from the original copy.

The Course Finder will come from the press in a very short time. The price of the work will be \$2.50, and the MARINE REVIEW is now taking advanced orders for same. Capt. John Wharry, special sales agent and solicitor for the MARINE REVIEW, will supply the trade at the Sault. The book will be sent on approval.

In entering the harbor of Cleveland Saturday night the steamer Roumania squeezed the tug William Kennedy which was tied at the east pier and broke her rail and a number of stanchions.



### "COURSE AND BEARING CORRECTOR."

The MARINE REVIEW will soon have on the market a device known as a "Course and Bearing Corrector." This device is for mechanically applying the variation and deviation in the conversion of courses—from true to compass and vice versa. It is a very handy and useful contrivance, and it will be found especially helpful to the beginner in learning how to correct courses and the reason for the rules. No matter how expert one may be in navigation, the best of them are liable to mistakes when it comes to correcting courses, such as in allowing the variation and the deviation the wrong way. Many a boat has been put ashore for just such mistakes. With the corrector there is no chance of mistakes, since all work performed by it proves itself. The corrector consists of three separate compass cards, one revolving within the other. The outside, or stationary card, represents the true points of the horizon and the inside card the Variation Compass and the inner card the Deviation Compass. You merely turn the magnetic card to the amount of your variation and the deviation card to the amount of your deviation, the compass course to be steered according to the true course sought will show itself at once. This is done by means of a string leading from the center. This string is held over the true course, hence, where the string cuts the edge of the Variation compass gives the correct magnetic course, and where it cuts the Deviation compass gives the compass course to be steered. One cannot make a mistake, since the turning of the cards corrects the course mechanically. Another thing, everything is figured from north and the operator can see at a glance that north on the inner card must be turned to the right of true north for Ely variation, and to the left for Wly variation, and just so with the Deviation card.

When a master has corrected his course for variation and deviation he should have some way of verifying his work. This corrector will do this for it solves all problems of the compass mechanically.

The beginner usually finds it very difficult to thoroughly understand the reason for the various rules of correcting the course. Use of the corrector will make this all very plain to him. You can learn more about correcting courses in one hour with this corrector than you can in a week's time by the ordinary methods of navigation. The Corrector is large enough

to give large marginal divisions so that when working to degrees everything is very distinguishable. There are many other usages the corrector can be put to besides the correcting of courses. A full explanation with practical examples accompany each corrector. The price of the Corrector is \$1. Send in your order at once and get one hot from the press. Capt. Wharry will also have the sale of the Corrector at the Sault. He will board all boats so all those engaged in that trade will have an opportunity of seeing the device before purchasing.

### QUESTIONS FOR WHEELSMEN AND WATCHMEN.

#### SECOND INSTALLMENT.

13. How does the point NNE on the compass get its name?

14. What is the Lubber's Mark or Lubber's Point of the compass? Where is it and what is it for?

15. How many points is it from NE to SE?

16. What point on the compass is the reverse of E½N?

17. If the wind is NE and a vessel sails 5 points from the wind close-hauled on the starboard tack, how should she be heading by compass?

18. How can you tell whether a sailing vessel is on the port tack or starboard tack?

19. How can you tell what tack a vessel is on in thick weather?

20. How many blasts of her fog horn should a sailing vessel blow when she is on the starboard tack with the wind forward of abeam?

21. What is meant by forward of abeam?

22. If a boat was heading N x E, how many points forward of abeam would E x N be?

23. What point on the compass is abreast of NNE on the starboard side?

24. If a vessel sails 5½ points from the wind when running close-hauled, how should she head on the port tack with the wind NW?

On May 11 there was launched from Roach's Ship Yard, Chester, Pa., the new freight steamer New Haven, built for the New England Navigation Co. The vessel is of 3,000 gross tons and is 292 ft. long, 45 ft. beam, 65 ft. over the guards, and 19 ft. depth of hold. She has one triple-expansion engine, size 20, 34 and 56 in. cylinder diameters by 42 in. stroke, steam to be supplied by three Scotch boilers, each 13 by 12 ft. The New Haven will ply on Long Island Sound.

### MAJ. CHARLES KELLER.

Major Chas. Keller, engineer of the eleventh lighthouse district and in general charge of rivers and harbors on Lake Huron with headquarters at Detroit, reached his present rank on January last. Under his direction much important work is being done on the chain of great lakes. Major Keller was born in New York, Feb. 13, 1868, and was appointed as cadet to the United States Military Academy July 1, 1868. He graduated in 1890 and was made second lieutenant in 1892. His first general assignment was in the United States Engineers' Office at Montgomery, Ala., in 1893. He was transferred to Rock Island in 1894 and served there until 1898. He was pro-



MAJ. CHARLES KELLER.

moted to the rank of first lieutenant in 1895. During part of 1898 he was in local charge of torpedo boat Defense Harbors of Charleston, Port Royal, S. C. During 1899 he was secretary of the Missouri River Commission, in which office he continued with headquarters at St. Louis until 1901. He was promoted to rank of captain in 1900. From 1901 to 1903 he was in charge of the river and harbor works on the eastern shore of Lake Michigan with headquarters at Grand Rapids. In 1903 he went to the Philippines where he was commander of Co. K. Third Battalion of Engineers. He was engineer of Moro Province from 1903 to 1905 serving as engineer officer of the department of Mindanao. Since September, 1905, he has been engineer of the eleventh lighthouse district. Among his important work at present is the construction of the lighthouse on Rock of Ages, Lake Superior.

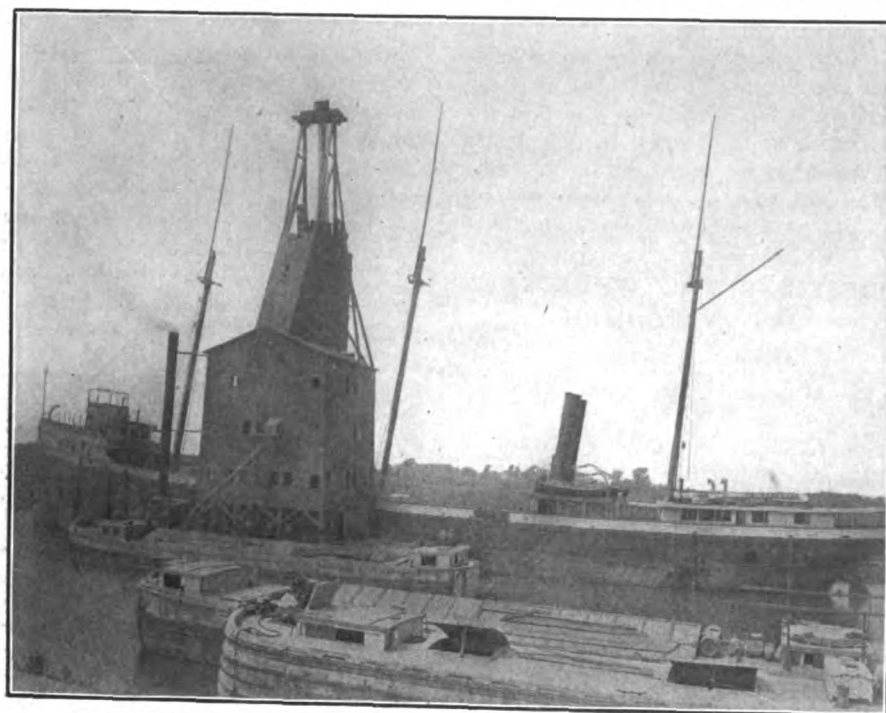
### HISTORY OF BUFFALO GRAIN TRADE.

Buffalo is the natural grain outlet of the great lakes. Other ports have an elevator or two to receive some of the golden harvest which is shipped

Lake Michigan, as well as the only one that year. It was not till the following year that a bulk shipment was made from Chicago, the brig Osceola bringing down 1,678 bus. of wheat to Durfee & Kingman, millers at Black

in 1841 that Joseph Dart, by all right the pioneer in his line, began the erection of the Dart elevator on the spot where the Bennett elevator now stands. His determination was to erect his structure and use steam power and the conveyor principle invented fifty years before by Oliver Evans. In the face of many obstacles and predictions of failure, he began the construction of the world's and Buffalo's first elevator, marking a new era in the business of transporting grain from western granaries to eastern markets. This elevator was completed in 1842.

Mahlon Kingman, a forwarding merchant at Buffalo, and probably a member of the firm of Durfee & Kingman, who had tried a horsepower elevator and failed, laughed at Dart's attempt to improve on old methods, saying, "Irishmen's backs are the cheapest elevators." He did not mean disrespect to the sons of Erin, but rather paid tribute to their industry and explained in six words the unbelievably crude manner grain was unloaded in the old days. He, as well as others, took out his grain from the holds of the old-time schooners by sending it up ladders on the backs of men or hoisting it in barrels, and then putting it in baskets and having men lined up to carry it into the warehouses. The grain, ten or fifteen bushels at a time, was weighed by means of a hopper and scales swung over the hatches.



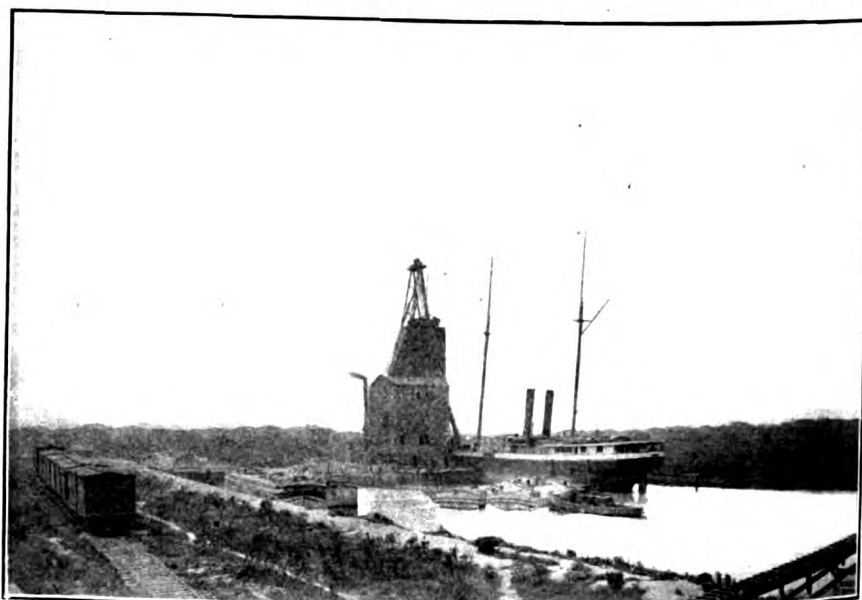
REAR ELEVATION SHOWING FLOATING ELEVATOR TRANSFERRING GRAIN FROM STEAMER TO CANAL BOAT.

by water from the great northwest, but they are only used for local markets. The grain which finds its way to the Buffalo elevators is sent to all parts of the world. The modern lake leviathans pour their stores into the Buffalo elevators and cars or canal boats continue it on its way to the seaboard. Figuratively speaking, the crop is so great, there is always a golden stream reaching from the northwest to Buffalo.

According to old records, Buffalo was a grain-receiving port as early as 1828. The business, however, at that time was purely local, the grain being consigned to New York millers and shipped from Ohio ports. Levi Allen, an old Buffalo captain, is authority for the statement that he brought down 6,000 bus. of wheat in the United States in 1828. This was considered a big load and the methods of unloading were then so crude, it took five days to take out the cargo. This was considered good time, too.

The New York millers were in the habit of going up to Ohio ports in the first half of the nineteenth century, but it is related that the old steamer Great Western put into Buffalo in 1838 with thirty-nine bags of wheat consigned by a Chicago grain shipper to an Otsego miller. So far as is known, this was the initial shipment from

Rock. The schooner General Harrison loaded 3,000 bus. of wheat at Chicago in 1840 for Buffalo. The Gazette



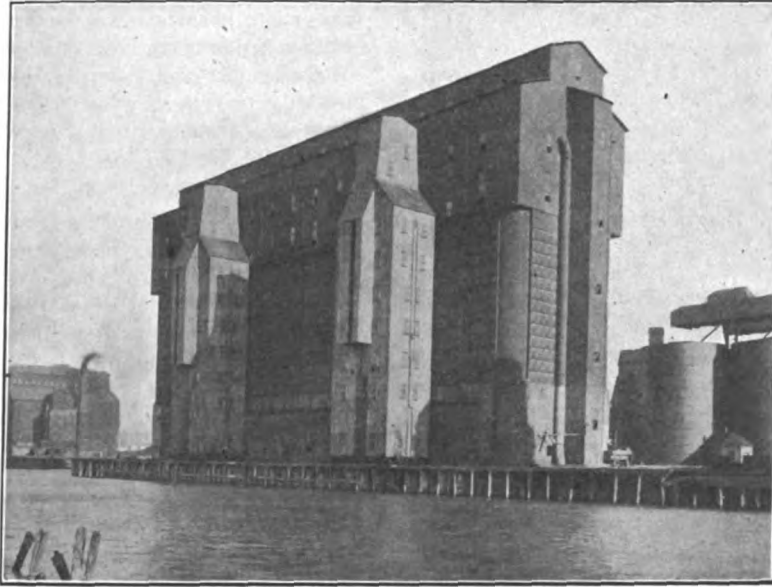
SIDE ELEVATION OF FLOATING ELEVATOR ELEVATING GRAIN FROM STEAMER IRON KING TO CANAL BOAT.

and Erie loaded 3,000 and 2,000 bus. of wheat the same year. These are said to be the first full cargoes.

Buffalo's grain traffic really dates from 1841, notwithstanding the fact that about 2,000,000 bus. of wheat had been received up till that year. It was

With fair weather, 2,000 bus. could be taken out in this way in a day.

Marine men generally and the public at large owe a debt first of all to Joseph Dart and then to Oliver Evans, though Joseph Dart, himself, modestly concedes full credit to Evans, say-



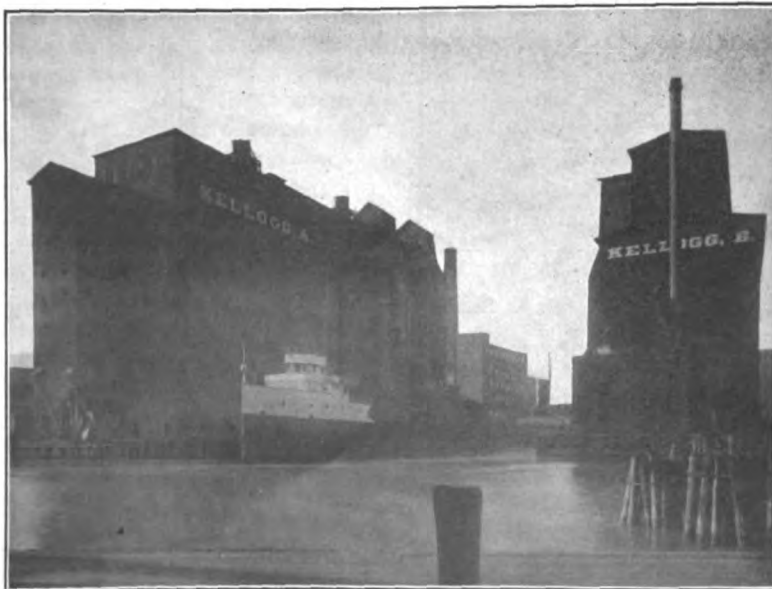
DAKOTA ELEVATOR.

ing he deserves a place at the side of Robert Fulton and Eli Whitney. Dart makes this statement because Evans invented the endless canvas or leather belt to which were attached buckets for taking up the grain through a leg. But Dart improved greatly upon the Evans' idea and it is to his credit to say that it remained for him to apply the Evans principle to the lakes. He was met with the rankest ridicule when he started in on his elevator, and it might be that years would have elapsed before it was adopted if he had not taken it up.

Evans had to contend with many obstacles in his day to work out his endless bucket and horizontal conveyor ideas. Joseph Dart relates that he was a natural-born mechanic who studied way into the night by the light of shavings when refused candles by his employer. As the result of all his study



MUTUAL ELEVATOR.



KELLOGG ELEVATORS. THESE ELEVATORS DO A BIG BUSINESS, THOUGH THEY ARE NOT SUITED FOR THE LATEST TYPE OF FREIGHTER.

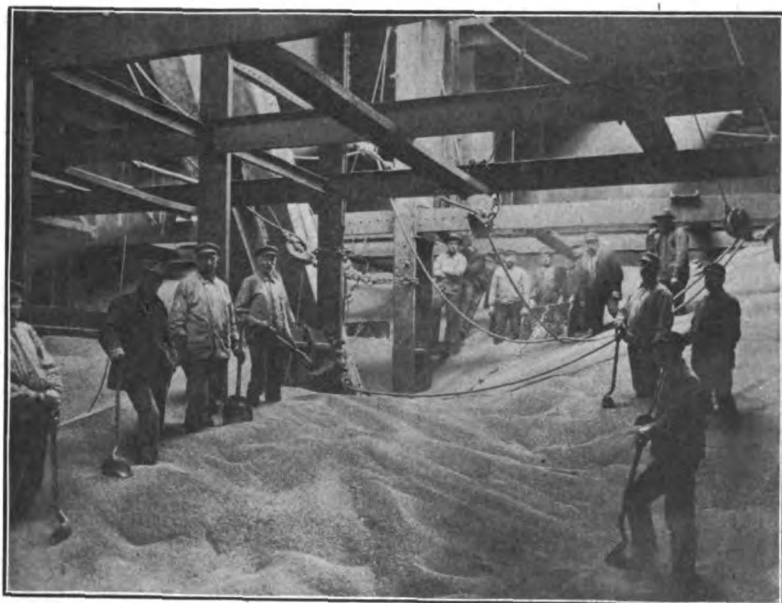
and labor, he gained the knowledge necessary to write "The Young Miller's Guide and Millwright's Companion," still considered a standard work. Evans tried to introduce his elevator on the banks of the Delaware in 1785, but failed, and he afterwards had to defend his title to the invention. He also invented the method of keeping flour in motion and exposed to the air till thoroughly dry and ready for packing.

Dart's elevator was the first structure of its kind in the world, being then known as a steam storage and transfer elevator. From all accounts, it was the first to be operated successfully, though there is brief mention made of one built at Black Rock in 1840 by Lewis F. Allen and a Mr. Lord. This, it appears, was operated by water power with a leg on the Niagara

river side and the other on the harbor side. The only mention found of this elevator are the names of the designer of the machinery, Robert Dunbar, and the makers, Jewett & Root. It could not have been successful, however, for if it had, the grain traffic would have been diverted there.

If Joseph Dart had lived in the middle ages he would surely have paid the penalty of his seeming folly in erecting his elevator, but as it was he had the extreme satisfaction of living when and where there was no danger of being sacrificed for individual effort. His initiative bore fruit a thousand fold, and it appears that thirty days after his elevator was in operation, one of the doubting Thomases among the Buffalo forwarding merchants came to him and offered double his regular rates for emergency accommodation. This man had been free in his predic-





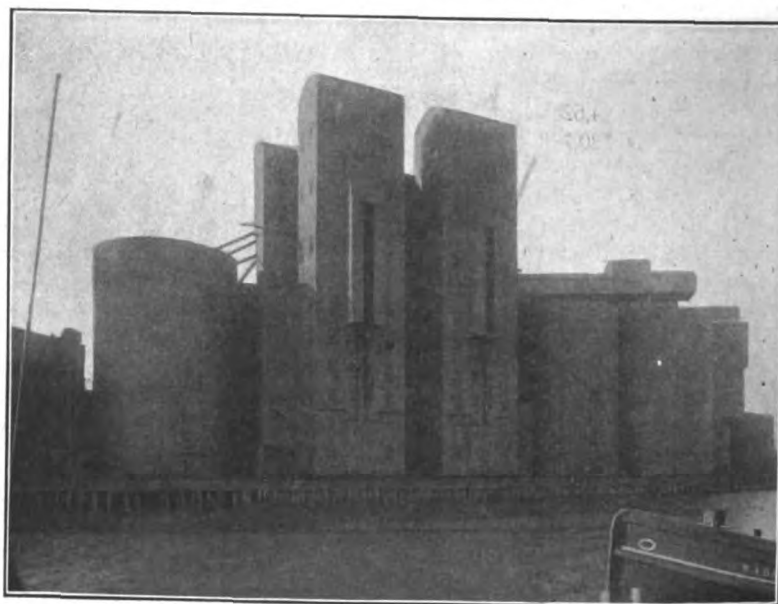
CLEANING UP THE LEG. IN THE HOLD OF THE STEAMER AURANIA.

tions that the forwarders would not pay the high charges demanded for a steam elevator. Dart's elevator, however, saved so much time, he saw the folly of his prediction and he capitulated.

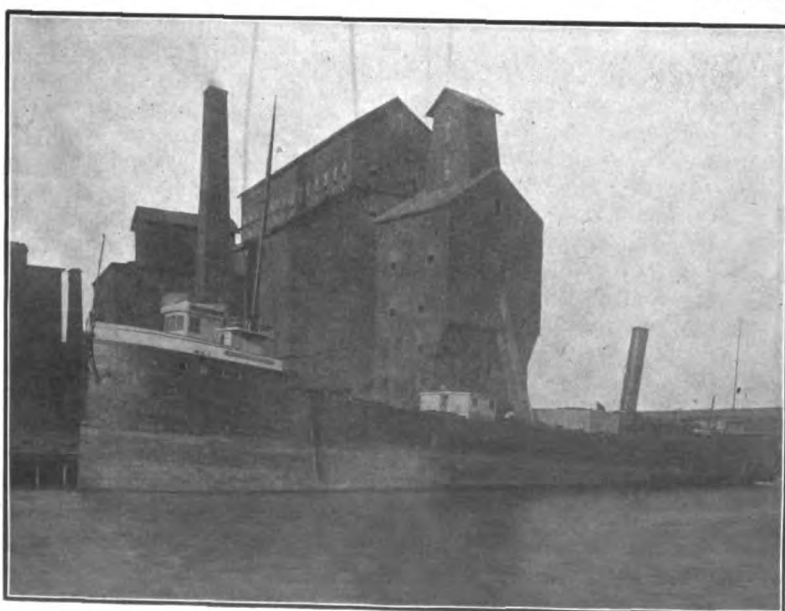
Today, the elevator business is on such a large scale, a big steamer carrying over 370,000 bus. has been unloaded in twenty-two hours working time. In 1828, it required five days to unload 6,000 bus., and in 1842 it required considerably less than a day to take out 4,000 bus. by means of the steam elevator. According to old records, the schooner John B. Skinner came in from Milan, O., early one afternoon with 4,000 bus. and unloaded and took on salt ballast late that same night. She got back to Milan, loaded another cargo and on her return from Buffalo for a third cargo, she went out in com-

pany with vessels which came in with her on her first trip. The funniest part of this is the fact that the boats went to Milan for their grain. There is no freight boat afloat today which could repeat the performance.

Dart's elevator had one leg when it was first operated and its capacity was 55,000 bus. Three years later the capacity was doubled and another leg was added. At that time, it had a slip under it for small boats. The schooner Philadelphia, commanded by Capt. Charles Rogers, was the first boat unloaded at the elevator, her cargo consisting of 4,515 bus. of wheat. It was consigned to H. M. Kinne and George Davis. The first corn cargo unloaded was from the South America, Capt. A. Bradley, consisting of 3,145 bus. This was June 22, 1843. During first year, the elevator elevated 229,260 bus. of



GREAT EASTERN ELEVATOR.



RICHMOND ELEVATOR, ONLY OPERATED DURING CANAL BOAT SEASON.

grain. The hourly elevating capacity was 1,000 bus. at the start with two-quart buckets set twenty-eight inches apart. This capacity was doubled by setting the buckets sixteen inches apart.

Lake freighters are now unloaded directly into the elevators, but the old-time boats and some which are still plying the lakes were unloaded by means of floating elevators, which, like the transfer towers, are no longer in use, and, one might say, no longer in existence. The floaters elevated the grain from a boat and loaded it into canal boats at the same time. Conditions were different then. With the present arch type boats, there would not be any chance to use floaters, nor could transfer towers be used.

Since the first Dart elevator, there have been a great many structures



erected, but the hand of time has wrought so many changes some of the elevators which were considered mammoth a few years ago are now limited on account of their location to certain sizes of boats. The 550-footer is restricted to houses like the Niagara, Erie, Export, Eastern and Mutual. A boat like the William P. Snyder will cover up three houses like the Union, Bennett and Evans. It might be said in this connection that if the 600-foot grain carrier is to come, some radical changes in Buffalo harbor will have to be made. The Snyder, Jones, or Laughlin are now winded out in the lake, causing big tug bills.

According to figures furnished by the Western Elevator association, the receipts of grain at Buffalo have been as follows:

1836, 543,461; 1846, 6,491,522; 1856, 20,123,567; 1866, 51,820,242; 1876, 44,207,121; 1880, 105,133,000; 1886, 72,349,236; 1896, 163,025,324; 1898, 221,383,945; 1899, 153,393,184; 1900, 157,655,969; 1901, 132,641,828; 1902, 124,626,438; 1903, 140,409,429; 1904, 100,880,795; 1905, 126,664,126. Although 1905 was a big year, the present year will offset it by many millions.

Joseph Dart and his supporters thought they were fortunate in having a 2,000-bu. hourly capacity, but this appears insignificant when it is known that the Mutual can elevate 30,000; the Dakota, 25,000, and the Eastern 20,000 an hour.

Buffalo has become a big harbor since 1842, and the storage capacity of the houses in the Western Elevator association, alone, is over twenty million bushels. In 1884, the grain men congratulated themselves on having enough elevators to handle 3,500,000 bu. of grain a day.

The most important additions to the original Evans' elevating principle are the portable legs and the steam shovel. The latter has made good dispatch possible when the car service is good and the elevators are not filled up.

Bertrand Vroman, of Put-in-Bay, who got first class pilot's papers last winter after studying with Capt. Gould, goes second mate of the Arundell on the St. Lawrence route when she starts in June. He is now wheeling on the S. J. Murphy.

Carl Ryberg, of Rush City, Minn., who lives on the banks of Rush Lake, is expecting to build a naphtha launch next winter. He is an oiler on the steamer Lake Shore. He has sailed two seasons, decking one year on the Fairbairn.

## AROUND THE GREAT LAKES.

The Cleveland Furnace Co. has purchased a large tract of lime stone on Kelley's Island.

The steamer Black Lock pulled into Milwaukee last week with a broken wheel and will go into dry dock.

A revised chart in colors of Eagle harbor, Lake Superior, has just been issued by the United States lake survey and is for sale by the MARINE REVIEW.

Construction work of the new coal dock to be erected by the Pickands, Mather & Co., at Sweet's Point near Detour has been started. The dock will be 750 ft. long and 150 ft. wide.

The Reid Wrecking Co. of Port Huron has taken the contract to raise the steamer Mascotte sunk at her dock at Hancock, Mich.

In a fire drill on the City of Buffalo of the Cleveland & Buffalo Co.'s fleet, eight boats were dropped overboard and manned in five minutes.

A McMyler derrick crane, property of the Gillen Construction Co., toppled over at Racine last week. Fortunately no one was hurt.

The steamer Phoenix of the Phoenix Transportation Co.'s fleet is undergoing extensive repairs at the ship yard of James Davidson, Bay City.

The steamer J. T. Hutchinson is at Buffalo receiving repairs to her starboard quarter caused by a collision with the steamer Sultana in Lake Superior.

The steamer City of Grand Rapids, owned by John W. Averill, was sold last week for \$3,275 to Wm. H. Fitzpatrick of the firm of Tarnsney & Fitzpatrick.

The steamer Saxon which was stranded at Caribou Island has been placed in dry dock at Toledo. She has thirty damaged plates and it will take about ten days to make repairs.

President Livingstone of the Lake Carriers' Association, has wired that up bound vessels may load to 18 ft. 10 in. and down bound vessels 19 ft. 6 in. for passage through the lime kilns.

M. E. Farr has been elected president of the Detroit Ship Building Co. to succeed the late Wm. C. McMillan. He will continue as treasurer. Philip H. McMillan was elected vice president.

The steamer Byron Whitaker which sank in collision near the lime kiln, has been floated by Wrecking Master H. W. Baker and has been taken to the Ecorse yard of the Great Lakes Engineering Works for repairs.

The Detroit Trust Co. is trustee for the new issue of the \$75,000 steamship bonds on the steamer Midland Prince owned by the Midland Navigation Co.

and built by the Collingwood Ship Building Co., Collingwood, Ont.

The report published in the newspapers that the steamers Nottingham and Monroe C. Smith, beached at Buffalo, had been abandoned by the underwriters, is erroneous. Favorable progress is being made in releasing the steamers.

The Canadian government has given notice that a line of buoys has been placed 200 ft. eastward of the eastern end of the western breakwater at Port Colborne, Lake Erie, to mark a ridge thrown out by dredging. Mariners are warned to keep to the eastward of the buoys. There is a channel over 300 ft. wide between the buoys and the end of the eastern breakwater.

The steamer J. C. Pringle owned by the Olga Steamship Co., has been libeled by A. Hoffman, Tonawanda, owner of the schooner Buffalo, for \$2,000. A claim for the same amount was filed against the Buffalo by the City of Duluth. The Buffalo was at Duluth last November in tow of the J. C. Pringle when the anchor of the Buffalo dropped to the bottom of the harbor dragging up the city pipe line, hence the claim.

The steamer T. F. Cole, the longest freighter on the great lakes, and the most superbly equipped in point of accommodation for invited guests, left the Ecorse yard of the Great Lakes Engineering Works on Sunday last on her maiden trip for ore. President Harry Coulby of the Pittsburg Steamship Co., and President William Livingstone of the Lake Carriers' Association were aboard. She was given a noisy reception as she passed up the river. She is 605 ft. 5 in. over all.

The horrible fate of four members of the crew of the steamer Naomi who were burned to death in the fore-castle of that steamer in plain sight of the rescuing party has again called attention to the necessity of enlarging the port holes to promote the passage of a human body. The fire had cut off their escape through the natural opening, and the port holes were too small for them to go through. Quite a number of steamers on the great lakes have dead lights of ample orifice to permit the passage of a human being in the case of emergency, notably, the City of Buffalo and the City of Erie, the Juniata and Tionesta. General Manager Schantz of the Detroit & Cleveland line, now announces that the steamers of the Detroit & Cleveland line and the Detroit & Buffalo line will have their port holes enlarged at the close of the present season.

# SCIENTIFIC LAKE NAVIGATION

BY CLARENCE E. LONG

A reference to the laws governing the various parts of the total deviation teaches us that the constant deviation has the same value on any and all azimuths—that the semicircular deviation is a uniform curve varying as the sine of the azimuth, or in proportion to the ratio of its squares as the angle or azimuth is changed. It changes in the same manner that the sides of a right triangle change when the angle at the hypotenuse is changed but retains always its one length. The quadrantal deviation is also a uniform curve varying as the sine of twice the azimuth, or what is the same thing as twice the ratio of its squares, or as the sides of a right triangle would change where the angle at the hypotenuse doubled but retained its one length.

The deviation curve makes it a simple matter to separate this combination of results into its component parts. The semicircular deviation consists of two parts; one of the parts being zero in the fore-and-aft line of the ship and its maximum amount in the athwartship line of the ship, or at right angles to the fore-and-aft line of the ship. The other portion is zero on the athwartship line but has its maximum amount on the fore-and-aft line. The deviation on the north and south points is due to this athwartship force and has its maximum amount when the ship's fore-and-aft line is in one with the magnetic meridian (ship's head north or south correct magnetic), and is zero when the magnetic meridian is at right angles to the fore-and-aft line; in other words, when the ship's head is either east or west correct magnetic, the athwartship force has no action because it is in one with the magnetic meridian. The deviation on north and south has no value on east and west, and the deviation on east and west has no value on north and south. Drawing each to a curve the two together will give the total amount of semicircular deviation for any course or point of the compass desired. The quadrantal deviation has its maximum amount on the quadrantal or intercardinal points, and is zero on the cardinal points.

However unsymmetrical the total deviation curve may be, or its amount on reverse points, it is comprised of three symmetrical curves, because the semicircular and quadrantal deviations can have the same name on the same compass point when combined, but when separated they can be opposite in name. The semicircular deviation gets its name because it has opposite names in reverse semicircles. If the semicircular deviation is

Ely in one-half the compass, it will be Wly in the other half of the compass. Quadrantal deviation has the same name in reverse quadrants, that is, the quadrantal deviation on NE and SW will have the same name (usually Ely, and on NW and SE (usually Wly).

If we take the mean algebraic sum of the deviation on reverse points, the result is the constant and quadrantal deviation combined. It is a record of the results of superposing the western curve upon the eastern. As the semicircular deviation varies as the sine of the compass azimuth, it is evident that the semicircular curve in the eastern semicircle is equal in value and opposite in sign to that of the western semicircle. The superposition of the two curves, then, results in the elimination of the semicircular deviation. For example: Supposing that by an observation we found the deviation on NE (c. m.) to be  $15^\circ$  Wly and on SW (c. m.)  $27^\circ$  Ely, how much is the semicircular and quadrantal deviations on these points? Mark Wly. deviations with a minus sign (—), and Ely deviations with a plus (+) sign, and proceed according to the rules of addition in algebra, that is, when the signs are opposite subtract the two quantities and give it the sign of the greater quantity, thus:

$$\begin{array}{r} \text{Total Dev. on SW (Ely)} + 27^\circ \\ \text{Total Dev. on NE (Wly)} - 15^\circ \\ \hline \phantom{\text{Total Dev. on NE (Wly)}} + 12^\circ, \end{array}$$

the mean of  $12^\circ$  is  $6^\circ$ , which equals the constant and quadrantal deviations on NE and SW, being Ely in name. Supposing the total deviation on NW was  $3^\circ$  Ely and on SE  $15^\circ$  Wly for this same compass, we would then have

$$\begin{array}{r} \text{SE} - 15^\circ \\ \text{NW} + 3^\circ \\ \hline \end{array}$$

$$-12^\circ, \text{ the mean, } 6^\circ \text{ Wly.}$$

We can find the same thing by adding together (algebraically) the deviations determined with ship's head correct magnetic NE, SW, SE and NW, reversing the sign of the two latter, and divide by 4, thus:

$$\begin{array}{r} \text{NE} - 15^\circ \\ \text{NW} - 3^\circ \text{ (sign reversed).} \\ \hline -18^\circ \\ \text{SE} + 27^\circ \\ \text{SE} + 15^\circ \\ \hline +42^\circ \\ -18^\circ \\ \hline 4) +24^\circ \\ \hline +6^\circ \end{array}$$

To determine the semicircular deviation

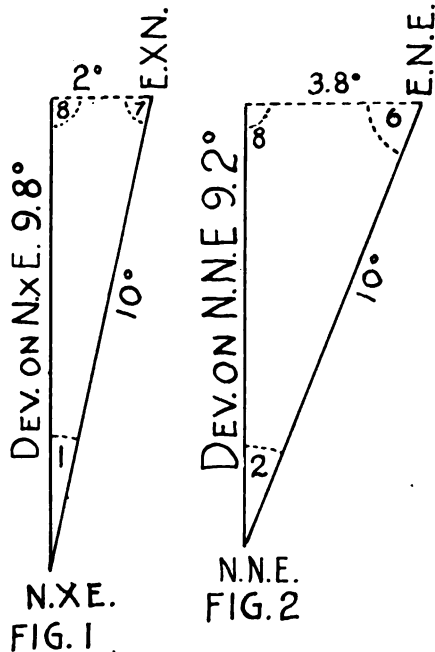
alone we take the mean algebraic difference of the total deviation on reverse points. The rule for algebraic subtraction is: change the sign of the quantity to be subtracted, take their difference, and affix the sign of the greater, if they are then of opposite names; but if changing the sign of the subtrahend, make it similar to that of the minuend, then add arithmetically both quantities together, and prefix the same (or common) sign. The minuend is the larger of the two numbers to be subtracted. The mean algebraic difference of the deviations on reverse points shows the result of superposing the western curve with the signs of the deviation changed upon the eastern curve. The constant and quadrantal deviations are eliminated, since half the constant curve is now equal in value and opposite in sign to the other half, and the quadrantal curve, varying as twice the sine of the azimuth, has, by changing signs in the western semicircle, also become equal and opposite in value to the curve in the eastern semicircle. Example: What is the semicircular deviation on NE and SW?

$$\begin{array}{r} \text{NE} - 15^\circ \\ \text{SW} - 27^\circ \text{ (sign changed).} \\ \hline 2) - 42^\circ \\ \hline -21^\circ, \end{array}$$

the amount of the semicircular deviation on NE and SW. The total deviation on NE is only  $15^\circ$  while the semicircular deviation alone is  $21^\circ$ .

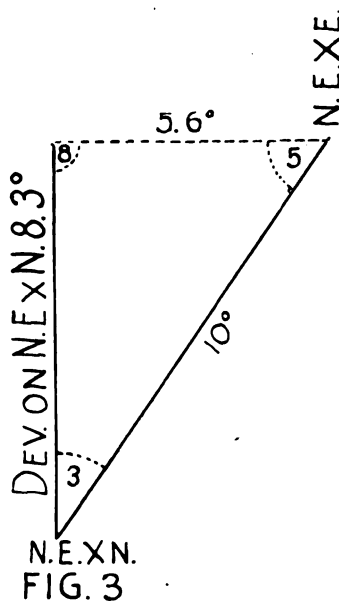
Now, to show how the deviation changes from point to point when the total curve is solved into its component parts; thus, if we wish to know how the deviation which attains its maximum amount on north and south will change as the boat's head is turned aside from the magnetic meridian, we may show it graphically as follows: Let the total deviation on north or south represent the length of the hypotenuse of a right triangle; supposing that it was 10 degrees. From this same effect what would the deviation be on N by E, NNE, NE by N, and NE. First draw a N by E line and lay it off into 10 equal parts, say  $\frac{1}{4}$ -inch to the degree. Next erect a perpendicular (a north line) and a base (an east line) to conform to this hypotenuse; then the length of the perpendicular will give the amount of the deviation of N by E. The length of this line will be 9.8 as compared with 10. Thus it changes in proportion to the ratio of its squares, since the sum of the

squares of perpendicular and base equal the square of the hypotenuse. Next draw a NNE line of the same length and then draw a perpendicular and base to conform to it. The length of the perpendicular will be the amount of the de-



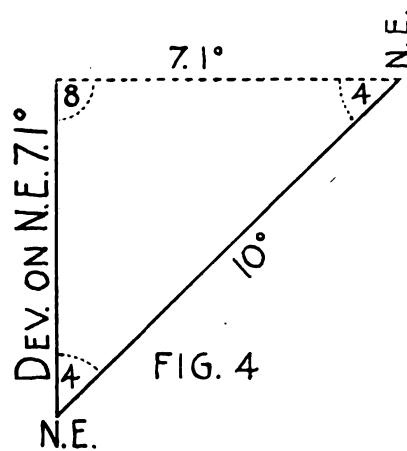
viation on NNE if it were 10 degrees on north. The deviation will be 9.2 degrees; on NE by N it will be 8.3 degrees, and on NE it will be 7.1 degrees. For the first point (N to N by E) the change in the deviation for a change in the ship's head of 1 point was but .2 degree, the next point .8 degree, for the next .9 degree, and for the fourth point 1.2 degrees. See Figs. 1, 2, 3 and 4.

If it were still desired to get the effects



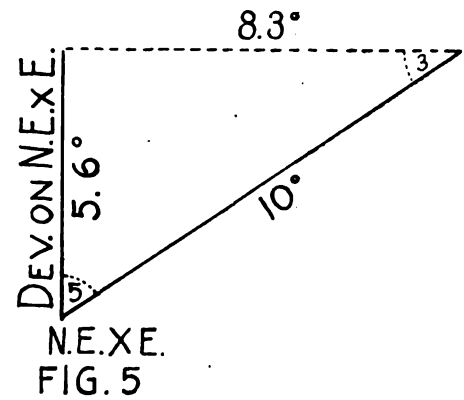
of this deviation for NE by E, ENE, E by N and East, all we have to do is to follow up the same rule. As will be seen by the diagrams the relations of the two elements are simply reversed. The perpendicular of a right triangle for a 3-

point course becomes the perpendicular in the same triangle for a 5-point course; or it may be stated thus: In a 3-point course the diff. lat. is the same as the dep. in a 5-point course; in other words, there is the same relation between the sides of the right triangle for a course of NE by N as there is for a course of NE by E. NNE and ENE conform to each other, since NNE is a 2-point course its complement is a 6-point course (8-2), and ENE is a 6-point course. As has been stated a number of times before the Traverse Tables for solving the various sailings are based on the right triangle, so that two of its sides conform to the difference of latitude (meaning a true north or south line) on the earth and departure, (meaning a true east or west line) on the earth. The hypotenuse conforms to course and distance in the sailings. The right triangle is also employed in solving problems in the composition and resolution of forces. Two forces acting at right angles to each other will produce a result equal to the



hypotenuse of that triangle because the square on the hypotenuse is equal to the sum of the squares on the other two sides. The two side forces, or the two sides of the right triangle are called the components, and these two forces produce the resultant force, and this is equivalent to the hypotenuse. The total deviation of the compass is the result of a combination of causes, which, when resolved into its component parts become simple laws based upon a simple rule of mathematics. It is by this process that the total deviation of a compass is resolved into its component parts and the value of the coefficients which enter into each.

Any agent that unites its action with that of some other agent for the procuring of a certain result is called a coefficient. One of several forces which acting in fixed directions are the equivalent of a given force is called a component. The semicircular deviation of the compass has its maximum effects on the cardinal points. This semicircular deviation is divided into two parts



or forces, one being an athwartship force and the other a fore-and-aft force. The deviation with the ship's head N or S correct magnetic is due to this athwartship force, the direction of the compass needle being the resultant (hypotenuse) force, and the fore-and-aft and athwartship lines of the ship represent the component forces; or imagine the two sides of a right triangle that would conform to the direction of the compass needle as hypotenuse. The resultant force is the direction of the compass needle with the ship's head N or S, and the deviation for all other points of the compass is based upon this resultant force measured by the fore-and-aft component, or that line of the right triangle that is coincident with the fore-and-aft line of the ship.

As will be seen by Figs. 1, 2, 3, 4, that the deviation on a 5-point (NE by E.) course is 5.6 degrees if it were 10 degrees on N, since if the ship's head was NE by E the line marked 5.6° (Fig. 3) would be coincident with the fore-and-aft line of the ship. The deviation on ENE would be 3.8° and on E by N 2° dwindling to nothing on East. Bear in mind that the sum of the three angles of every triangle are equal to 16 compass points (180 degrees). In the right angle there is always 8 points (90 degrees) so that the other two together should always make 8 more. If one of the angles at the hypotenuse is 3 the angle at the other end of the hypotenuse will be what it lacks of 8 points. If you were to draw a NE by E line at a length of 10 and erect a perpendicular 5.6 the base line of same would measure 8.3, see Fig 5. Figs. 3 and 5 are practically the same thing, the conditions being merely reversed.

Now, the second part of the semicircular deviation has its maximum effect with the ship's head E or W correct magnetic, and dwindles to zero on N and S, just the reverse of the maximum deviation for N and S. In this case the deviation for each point is taken from the athwartship line (the base or departure line of the right triangle), since the resultant force is due to a force running

fore and aft of the ship. Supposing the deviation on east was 20 degrees, the deviation due to this same cause would be 19.6° on E by N; 18.5° on ENE; 16.6° on NE by E; 14.1° on NE; 11.1° on NE by N; 7.7° on NNE; 3.9° on N by E and nothing on N. Just draw this out and try it for yourself. The Traverse Tables are handy for this purpose since you can find by mere inspection the whole thing in a minute or two. If the Traverse Tables are used (one would hardly think of getting along without them, but I am showing what can be done without them) the rule is simply this: Seek in the distance column for the amount of your deviation on N. or S. for the point of the compass you desire to find the effects of this deviation and pick it out in the Lat. column. With the deviation on either E or W do the same thing only you will find it now in the Dep. column. A little study and practice will make this all very clear. If it is now desired to know the total effect of the semicircular deviation on any given point add the two deviations as found for the point and you have it. For example: The total semicircular deviation on NE by E is  $5.6^\circ + 16.6^\circ = 22.2^\circ$ . With the foregoing information it becomes a very easy matter to draw both parts of the semicircular deviation to a curve or the whole of it, just as you please.

The quadrantal deviation has its maximum amount on the intercardinal points and dwindles away to nothing on the cardinal points. The quadrantal deviation changes twice as rapidly as does the semicircular deviation. Illustrating this change by means of the right triangle proceed thus: First establish the point of the compass you desire the quadrantal deviation for, and determine how far it is from the nearest cardinal point. Double this angle and draw its line as a course of a length equal to the quadrantal deviation on an intercardinal point. Next draw a perpendicular and base to conform to the angle line (hypotenuse) drawn. The length of the base line will give you the required deviation. Example: The quadrantal deviation on NE is 6° what it will be on NE. by E? NE. by E is 3 points from East, and twice 3 is 6, or 6 points; ENE is a 6-point course, so we draw an ENE line 6 parts long, and the departure line drawn to conform with it will be the amount of the quadrantal deviation on NE by E if it is 6 degrees on NE. The Dev. is 5.5°. It will also be the quadrantal deviation on NE by N, since NE by N is also 3 points from a cardinal point. For NNE and ENE, each being 2 points from a cardinal point, and twice this angle will make 4 points or 45 degrees. So draw a 45 degree angle 6 parts long and draw the departure line to conform to it and

its length will give the quadrantal deviation for NNE and ENE. It will be found to be 4.2 degrees. On N by E and E by N it will be 2.3 degrees. See Figs. 6 and 7.

Note.—A protractor may be used for laying off the angles employing a scale of equal parts for measuring the sides.

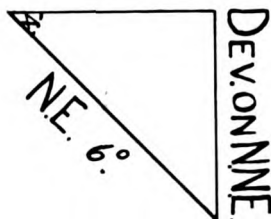


FIG. 6.

It will also be found handy and very convenient to work it on a chart, using parallel ruler and the chart compass. Any convenient scale will answer the purpose so long as the same scale is used for measuring all the sides. It must be remembered that only the direction of the hypotenuse and its length is required, for if a truly perpendicular line is drawn upward from its starting pointing and a true horizontal line is drawn from the end of the hypotenuse to intersect with this perpendicular line so as to form a truly right angle, the sides will be a precise proportion of the hypotenuse.

Although the quadrantal deviation is rarely large in amount like the semi-



FIG. 7.

circular deviation, it is more embarrassing than a semicircular deviation of the same amount, since it changes twice as rapidly. The true significance of this will be seen when it is explained that a quadrantal deviation of 10° implies a rapid change in the deviation of the compass, amounting to so much as a half point with so small a change as a point and a half in the ship's course, from one side to the other of the four cardinal courses.

Peter C. Peterson, watchman on the steamer *Superior City*, is considered one of the most athletic men on the lakes although he is sixty years of age. He can balance a broom at arm's length with two fingers, and can hold a chair out in the same way with the same number of fingers.

## LONDON'S SEVEN-YEAR'S CRUISE.

Jack London, the noted author and story writer, very recently sailed from San Francisco on his new, trim, and staunch little sail and steam yacht, the *Snark*, bound on a seven-year's cruise around the globe. London is accompanied by his young wife and a crew of four.

The *Snark* is the smallest craft that has, perhaps, ever yet attempted the circumnavigation of the globe. This yacht is 57 ft. over all; has 15-ft. beam, and 7-ft. draught. Completed, fully equipped, provisioned, etc., the *Snark* cost about \$25,000.

The *Snark* proceeds direct to Honolulu, and from thence to the remote South Seas, visiting in turn China, Japan, Australia, New Zealand, the Marquesas, Polynesia, India, and so on



THE SNARK.

around the navigable globe. London also proposes, if possible, to ascend the Yang-tse-Kiang, Zambesi, Congo, Nile, Amazon, and other great streams. In round numbers, London expects his protracted voyage will last 2,555 days. Travel, quest of adventure, and to collect new material for his prolific pen, are the chief motives prompting the author to make this long and perilous cruise.

London is under contract to furnish a series of articles to several large American publications during his protracted voyage. He plans to do systematic literary work on the cruise in which he will be efficiently assisted by Mrs. London, that lady acting as his amanuensis and typewriter.

The government tug *J. M. Wilson* has recently been dry docked at the yard of the Moran Co., Seattle, Wash., for painting and slight repairs to her hull.



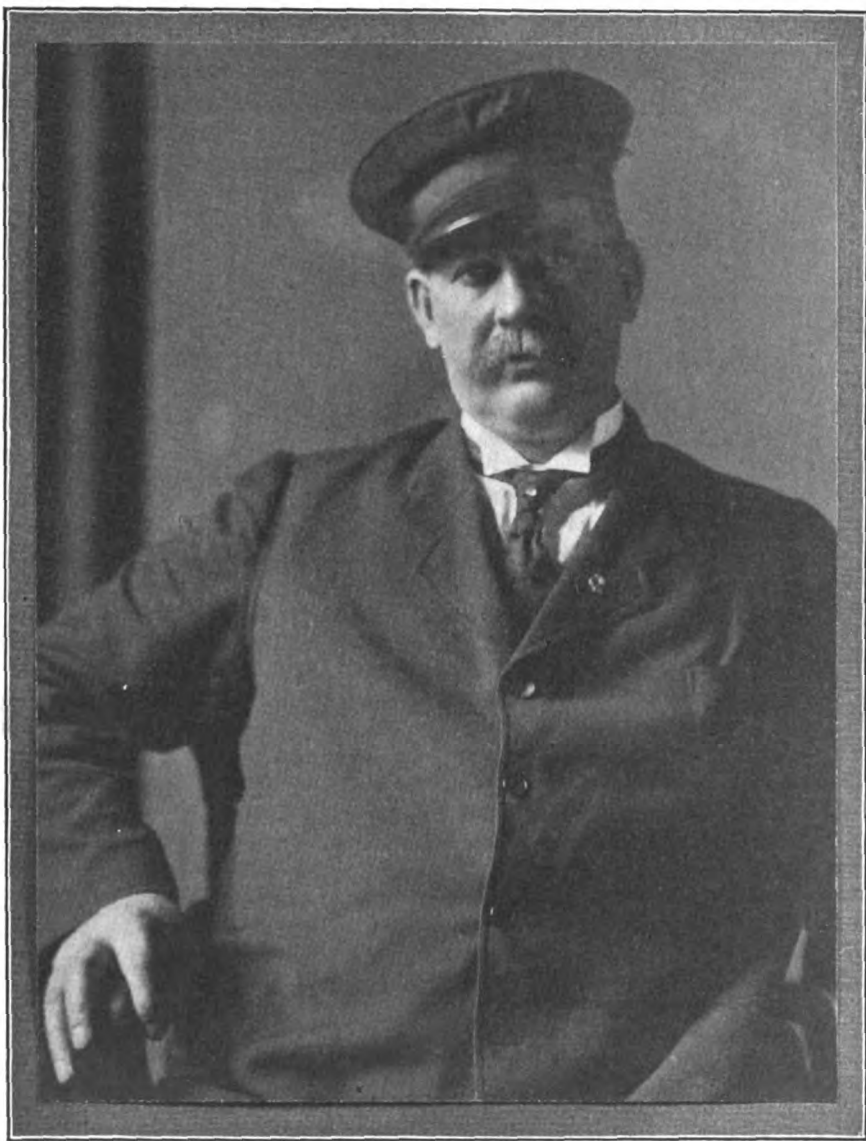
### MARINE REVIEW'S AGENT AT SAULT STE. MARIE.

Capt. John Wharry will represent the MARINE REVIEW as its agent at Sault Ste. Marie this season. Capt. Wharry has been sailing since boyhood, and it is probably true that no better man could be selected to interest the younger element aboard ship in the series of articles now being published by the MARINE REVIEW on

Every effort will be made to make each issue self-contained and self-explanatory. The MARINE REVIEW realizes, however, that the written word is never as clear as the spoken word and that men who never can be persuaded to write for information on a doubtful point will readily ask questions orally if given the opportunity. It is for this reason that the MARINE REVIEW has selected Capt. Wharry to

all the correct magnetic ranges and all the mean correct magnetic courses on the lakes with an explanation of a simple method of making or finding the course to be steered between any points on the lakes. More of this proposed book will be found on the editorial page.

Aside from one season on the tug Collin Moore, Capt. Wharry's early experience was obtained on sailing vessels. He has sailed in the position of mate or master on the schooners Russia, Mary Norwood, Craftsman, New Dominion, Dauntless, E. G. Benedict, Jury, Louise, H. P. Murray, Cataract, and Iron City. His first experience steamboating was on the W. F. Millen. Then he went second mate of the Iron Duke, and first mate of the Iron King. He has since been respectively mate of the Selwin Eddy, Bermuda, Saxon, Maricopa, Joseph L. Colby, and the Kensington.



CAPT. JOHN WHARRY  
MARINE REVIEW Agent at the Sault.

Lake Navigation. In its issue of May 23 the MARINE REVIEW began the publication of a course of questions with special reference to wheelmen and watchmen. Sufficient impressions of this issue have been made in order that all who desire to follow it may begin at the beginning. Sufficient impressions will also be made of each succeeding issue so that the MARINE REVIEW will at all times be fully prepared to supply all late comers with a copy.

supplement the course by stationing him at the Sault, where he will meet all boats. Everyone may feel at liberty to enlist the services of Capt. Wharry in this particular. He will be supplied with all necessary things, such as azimuth tables, nautical almanacs, dividers, protractors, and parallel rules. In addition, as soon as the MARINE REVIEW can get it off the press, which will be within a week or two, he will be supplied with the Marine Review Course Finder, a book that contains

### DEATH OF JOHN A. WALKER.

John A. Walker, vice president and treasurer of the Joseph Dixon Crucible Co., died last week at his home, No. 260 Montgomery St., Jersey City. Mr. Walker was a man of many activities and his passing while yet in the prime of life is greatly regretted. In addition to his duties as vice president and treasurer of the Joseph Dixon Crucible Co., which company he had developed into one of the standard American industries, he was also a director of the Colonial Fire Insurance Co. of America, New York Title, Guarantee & Trust Co., and the Pavonia Trust Co. He was a member of the New York Chamber of Commerce, Twilight Club, and several clubs of Jersey City, including the Union League and the Cosmos.

### PROTECTION TO SHIPPING.

W. R. Leaken, of Savannah, Ga., has been nominated as expert on maritime affairs for the Mutual Steamship association. Mr. Leaken is a Republican but has been a consistent advocate of the policy of protection to American shipping in the foreign trade. Mr. Leaken recently had an interview in the *Savannah Press* on the subject. He says that from statistics compiled by the MARINE REVIEW that if the shipping bill had passed it would have resulted in the construction of thirty-two steamers in American ship yards and would have done much to stimulate industry throughout the country. He is also of opinion that the entire subsidy to shipping would readily be paid from the receipts of sea postage.

## NON-REVERSE COURSES AGAIN.

Editor MARINE REVIEW:—Have carefully gone over the courses recommended by the Auxiliary Committee on Aids to Navigation of the Lake Carriers' Association, as published in the MARINE REVIEW of April 18. I have several objections to make to these courses. On Lake Superior their proposed course runs in one with that of the usual course for some 30 miles in the vicinity of Keweenaw Pt., and intersects with the usual chart course 12 miles north of Eagle Harbor. Now, if the object is to take a course that will clear the usual course run by boats, why should this outer course be made to intersect with the usual course in a case where it is not necessary to do so, as in this case?

You will readily observe this by drawing a line on a chart from a point 8 miles north of Devils Island to a point 14 miles north of Copper Harbor. Their course intersects at the turning point of the usual course followed by boats from Whitefish Pt. to Devils Island. Upbound boats from Whitefish Pt. steer WNW to a point 12 miles north of Eagle Harbor in thick weather and also with NEly. and NWly. winds. It would seem to me that it would be all fallacy to steer so far north of Devils Island from Duluth and then on the run to round Keweenaw Pt. to steer in the direct path of upbound boats towards the end of the run. In my judgment the worst feature of their proposed course is its intersection with the turning point of the usual course. Also, when a vessel makes the turn 12 miles north of Eagle Harbor bound up, for an hour or more she is in the direct path of the proposed outer course and for 50 miles from the turning point she would not have to carry much northerly from her course to be in one with the proposed course from a point 14 miles north of Copper Harbor to Whitefish Pt. Vessels from Whitefish Pt. to Keweenaw Pt. would not have to be much out of their course for the first 50 miles to be in the direct path of boats pursuing the proposed course. Now, I would suggest that they steer a course outside of the one proposed by this committee. Supposing two courses were made on this lake instead of three as proposed by the committee. While somewhat longer than the committee's track it would nevertheless answer fully the object to be sought. Its other advantages would be these: But two courses would be made, one of 210 miles and the other 157 miles, against three in both the usual and proposed tracks. This outside course

would have one less artificial aid than either of the other routes. It would have Devils Island, Isle Royal and Caribou Island, while the others get Devils Island, Eagle Harbor, Copper Harbor and Manitou Island. The committee's course has the advantage of one more light and fog signal, but since all these lights are in close proximity to one another they are not much better than if there were only one such light and fog signal. Another advantage of this outside course is that the navigator has an opportunity of verifying his position within 50 miles of Whitefish Pt. from the run from Devil's island by the aid of Caribou island light or fog signal, while with the committee's course Whitefish Pt. is made after a run of about 120 miles. Another advantage of this outside course is that it leads 4 miles north of the usual turning point at Whitefish Pt. and clears by 2 miles the turning point at Whitefish for upbound boats, provided they turned at 4 miles as proposed. The course from 6 miles north of Whitefish Pt. to Parisian Island leads clear of the course of vessels bound up Whitefish Bay. You will notice that this makes a straight course by Caribou Island and passes the Island at a distance of nine miles when abreast of it, which is plenty close; 10 miles would be better, but that would bring closer to Whitefish Pt. than is desired. Caribou Island has an efficient light with a visibility of 17½ miles under ordinary conditions.

The same fault exists on Lake Huron with the proposed route of the Lake Carriers' committee as on Lake Superior. From Port Sanilac to Port Huron lightship their course is the same as that given on the chart and usually followed by large boats. I would suggest a course outside of this one; it would answer the purpose since it would be outside of all routes taken by upbound boats. It likewise has the same advantage of the lights and fog signals of the committee's route. From Port Sanilac down by following a course midway between the usual course along the west shore of Lake Huron and the course from Port Huron lightship to the entrance to Georgian Bay insures perfect safety on either hand. This outside course still has all the advantages of the aids to navigation the same as the other routes.

Following is a summary of the three tracks:

The usual or chart distances on Lake Superior:

Duluth to Devil's Island.....	68	miles.
Devil's Island to Eagle Harbor....	126	"
Eagle Harbor to Whitefish Pt....	161½	"
Total .....	355½	"

Distances on Lake Superior as per courses proposed by the Lake Carriers' committee:

Duluth to Devil's Island.....	70	miles.
Devil's Island to a point 14 miles N. of Copper Harbor....	138	"
From a point 14 miles N. of Copper Harbor to Whitefish Pt. 149	"	

Total ..... 357 "

Difference between usual and the proposed tracks 1½ miles.

Distances by a two course route on Lake Superior:

Duluth to a point 29 miles SE ¼ E from Passage Island light-house .....	210	miles.
From the above point to a point 6 miles north of Whitefish Pt. lighthouse .....	157	"

Total ..... 367 "

The distance by this route is 10 miles greater than the route proposed by the Lake Carriers' Association and 1½ miles greater than the usual chart track.

Artificial aids to navigation on Blue route, Lake Superior:

Devil's Island light visible 18¼ miles; steam fog whistle; 7 miles from course.

Isle Royal light visible 16 miles; distant 15 miles from course.

Caribou Island light visible 17¼ miles; steam fog horn; distant 9 miles from course.

Artificial aids to navigation on the route as proposed by the Lake Carriers' committee, Lake Superior:

Devil's Island light, 8 miles from course.

Eagle Harbor light visible 15 miles; steam fog whistle; 12 miles from course.

Copper Harbor light visible 15¼ miles; 14 miles from course.

Manitou Island light visible 17 miles; steam fog whistle; 12 miles from course.

Note.—Caribou Island light affords a better means of verifying the course to Whitefish Pt. (on a two course route) and as a point of departure for the same point (that is, to Whitefish Pt.) than does Manitou Island light on the committee's route for the reasons already given. The same thing may be said in regard to its fog whistle.

True and correct magnetic courses on Lake Superior according to the proposed route described by the Lake Carriers' Committee:

Duluth to a point 8 miles north of Devil's Island, true NE by E 7¼E; cor. mag. NE by E ¼E.

Devil's Island to a point 14 miles north of Copper Harbor, true ENE ¾E (E by N ¼N); correct magnetic ENE ¾E (E by N 5¼N).

From a point 14 miles north of Copper Harbor to 2 miles north of Whitefish Pt., true SE by E 7¼E; correct magnetic SE by E 7¼E.

True and correct magnetic courses on Lake Superior as per a two course route:

Duluth to a point 29 miles SE  $\frac{1}{4}$ E of Passage Island lighthouse, or to a point 32 miles N  $\frac{3}{4}$ W of Copper Harbor lighthouse, true ENE  $\frac{1}{8}$ E (E by N  $\frac{1}{4}$ N); correct magnetic NE by E  $\frac{5}{8}$ E.

From the above point to a point 6 miles north of Whitefish Pt. lighthouse, true SE by E  $\frac{5}{8}$ E (small); correct magnetic SE by E  $\frac{5}{8}$ E.

The usual or chart distances on Lake Huron:

Detour to Presque Isle.....	45 $\frac{1}{4}$ miles
Presque to Thunder Bay Island..	26 $\frac{3}{4}$ "
Thunder Bay Island to Harbor Beach .....	86 "
Harbor Beach to Port Sanilac....	31 "
Port Sanilac to Port Huron Lightship .....	29 "

Total ..... 218  $\frac{1}{4}$  miles

Distances on Lake Huron as per courses proposed by the Lake Carriers' Committee:

Detour to 12 miles off Thunder Bay Island .....	70 miles
From 12 miles off Thunder Bay Island to 12 miles off Harbor Beach .....	90 "
From 12 miles off Harbor Beach to Port Huron lightship.....	60 $\frac{1}{2}$ "

Total ..... 220  $\frac{1}{2}$  miles

Difference between the usual and the proposed tracks 2  $\frac{1}{4}$  miles.

Distances by a farther outside track on Lake Huron:

Detour to a point 109 $\frac{3}{4}$ miles SE $\frac{1}{4}$ S true from Detour.....	109 $\frac{3}{4}$ miles
From this last point to a point 9 miles abreast of Port Sanilac....	87 $\frac{1}{2}$ "
From Port Sanilac to Port Huron lightship .....	28 $\frac{1}{4}$ "

Total ..... 225  $\frac{1}{4}$  miles

This route is 5 miles greater than the route proposed by the Lake Carriers and 7  $\frac{1}{4}$  miles greater than the usual track.

True and correct magnetic courses on Lake Huron according to the proposed route described by the Lake Carriers' Committee:

Detour to a point 12 miles NE  $\frac{1}{2}$ E of Thunder Bay Island lighthouse, true SE  $\frac{1}{8}$ S; correct magnetic SE by S (small).

Thunder Bay Island lighthouse to a point 12 miles ENE of Harbor Beach lighthouse, true S by E  $\frac{5}{8}$ E; correct magnetic S by E  $\frac{3}{8}$ E.

From this last point to Port Huron light vessel, true south; correct magnetic S  $\frac{3}{4}$ W.

True and Correct Magnetic courses on outside route:

Detour to a point 109  $\frac{3}{4}$  miles true SE  $\frac{5}{8}$ S of Detour; correct magnetic course SE by S.

From the above point to a point 8  $\frac{1}{2}$  miles abreast of Port Sanilac, true S  $\frac{1}{2}$ E; correct magnetic S  $\frac{1}{4}$ E.

From the above point to Port Huron lightship, true S  $\frac{1}{2}$ W, correct magnetic S  $\frac{3}{8}$ W.

From Nine Mile Pt. to a point 10 miles NE  $\frac{1}{2}$ E of Presque Isle light, true ESE  $\frac{1}{8}$  (E by S  $\frac{1}{4}$ S); correct magnetic SE by E  $\frac{3}{4}$ E.

The only advantage of the committee's route over the one just recommended is in its lesser distance, but this counts for naught when we take into consideration the object sought. While I realize that it will be a very difficult matter to get all the boats, or even a small per cent of them to follow an outside course, no matter which one, it should nevertheless be given a fair trial. No harm could come from it at any rate, and this would go a long ways in proving whether it is practicable or impracticable. There are many masters, especially those in the smaller boats, whose one great object is to make time, and to accomplish this they many times take the most foolhardy chances. Every ambitious master is desirous of making time, of course, but he should use judgment and discretion in doing it. Cutting off corners in the courses is one of the things many masters do. They figure that they are saving a whole lot of time. At the most they can not save an hour's time in a run like from Chicago to Buffalo. This is figuring falsely, for what does this short time amount to compared with the chances taken of fetching the bottom by shaving too closely. To save this paltry hour or so, has often resulted in the loss of a season's earnings to the ship so navigated.

To take such risks there must be sufficient value ahead to counter-balance many times over the worth of the risk taken. But how often is this the case. When one stops to think of the uncertainties in loading and unloading in port in addition to other delays for which there is no help, this insignificant half hour saved is of no moment. No master of sound judgment takes these risks. There are many men who think that by cutting the corners on courses that they are saving a great deal of time and distance, but a man having a proper knowledge of sailing a boat does not have to be told that the difference is not worth recognizing, and for the chances taken is not worthy of consideration. These fellows that are continually shaving and cutting the corners off courses are the ones that never have courses that they can depend on in thick weather, and it is safe to say that all the time saved for a season in cutting courses is lost twice over the very first time the ship has a thick weather trip of it. It is false reckoning to say the least.

CLARENCE E. LONG.

## THE PATENT LOG.

Question and Answer Department:—Can the patent log be depended upon under all conditions? Will it register as accurately running half speed as when the ship is at full speed? If a log registers about right when the ship is making full speed will it under-rate or over-rate at a reduced speed? A MASTER.

Milwaukee, Wis., May 1.

Answer:—While the patent log is not a perfect instrument it nevertheless affords the most accurate means available for determining the vessel's speed through the water. It will usually be found that the readings of the log are in error by a constant percentage, by either too much or too little, usually too little, but not necessarily. The amount of this error should be determined by careful experiment and applied to all readings.

The readings of the patent log can not be depended upon for accuracy at low speeds, when the rotator does not tow horizontally, nor in a head or following sea, when the effect depends upon the wave motion as well as the speed of the vessel. The length of the log-line being towed has much to do with the working of the log, and by varying the length the indications of the instrument may sometimes be adjusted when the percentage of error is small; it is particularly important that the line shall not be too short. The correct length of line used for high speed will not answer for a low speed. The line will be too long for the low speed. To register correctly for a low speed the line would have to be shortened considerably from the length that answered for a high speed. The same length of line will not answer for all speeds. A too long line will under-rate and a too short line will over-rate, ordinarily. The higher speed attained the longer length line required, and the lower the speed the shorter the line. There is a limit, of course, in the latter case, since the speed may be so small as to prevent the rotator from sinking. It requires a great deal of experimenting to get a log to register accurately or nearly so. In the case of checking down to a certain speed in foggy weather it is a good plan to have a length of line that will conform to this speed. It would be but little bother to substitute one for the other when necessary to do so. If this is not done then a correction should be applied to the log from the indications shown when at full speed. To do this accurately one should check down to the speed required in thick weather and then run a known distance and by a little experimenting the length of line required can easily be determined upon. Another good way, and one that will save a whole lot of time in the experiment, is to get the number of



revolutions of the screw propeller for a known distance, and the number of revolutions to the mile for this speed. A two or three hours' run at the required speed will give plenty of opportunity to experiment with the length of line required. This same method may be employed for ascertaining the length of line required for full speed, in the case of a new log. When you have ascertained the proper length of line be sure to make a note of it in the log-book so that in case you meet with an accident or otherwise lose the line you will know the length to put out for the new line. Do not get the idea that because a log line is 300 or more feet in length that it is necessary to use it all. It all depends upon the speed of your ship, and the greater the speed the greater length of line required. A line much too short will under-rate because the rotator will skip at times.

Various causes may operate to produce inaccuracy of working in the patent log, such as the bending of the wings of the rotator by accidental blows, fouling of the rotator from refuse from the ship, or mechanical wear of parts of the register. When the proper length of line has been found and the log afterwards indicates wrongly it cannot be the line that is at fault.

The revolutions of the screw propeller afford in a steamer a valuable check upon the patent log and a means of replacing it if necessary. To be of service the number of revolutions per mile must be carefully determined for the vessel by experiment under varying conditions of speed, draught, etc. The log and revolutions of the propeller should also be checked by time courses. Not sufficient attention is paid to the distance run by the revolutions of the screw.

#### DEATH OF THE CUNARD MANAGER.

The death of Albert Pigolt Moorhouse, the general manager of the Cunard Steamship Co., took place on May 15. The deceased gentleman, who had suffered for a lengthy period from an internal complaint, many months ago underwent a serious operation, but this failed to secure for the patient that immunity from suffering which was desired. He succumbed to a disease which in his case was said to have been incurable. The late Mr. Moorhouse had a vast experience of British and continental shipping. He laid the foundation of this while in the employ of the Mersey Docks and Harbor board. For 15 years he was the secretary of the Cunard Steamship Co., and succeeded to the management in 1898, when Mr. Bomphez retired. He was a man of keen judgment, and was quick to grasp details of projects brought before him.

During his management of the Cunard Co. many momentous events have transpired in the shipping world which to one occupying a position such as he did, must have caused much thought and consideration. For instance, there was in 1902 the formation of the International Mercantile Marine Co., and later the inauguration of the Cunard Hungarian-American line, and the completion of the most important agreement between the British government and the Cunard Co. which enabled the two new express turbine steamers *Lusitania* and *Mauretania*, to be built. Then there was the memorable passenger rate war from which the Cunard Co. emerged triumphant. All these events must have proved a severe strain



ALBERT PIGOLT MOORHOUSE.

upon his weakened constitution, and shortened his life somewhat. It is a matter of wide regret that he was not spared to see in commission the two leviathans, in the evolution of which he, together with the late chairman of the company (Lord Inverclyde), took such an active part. Mr. Moorhouse was 59 years of age and was held in very high esteem throughout the world of shipping.

#### A CORRECTION.

In our description of the wrecker *Favorite* in last week's issue we referred to H. Penton as the designer of her machinery. Mr. Penton, however, disclaims the credit, saying that it belongs to the American Ship Building Co., the builders of the ship, his only connection with it being the drawing of the specifications for the propelling equipment in collaboration with W. I. Babcock, who furnished the designs for the ship as a whole.

#### GENERAL RULES AFFECTING LIABILITY FOR INJURIES BY VESSELS.

The mere fact that one vessel strikes and damages another does not of itself make her liable for the injury. Negligence, fault, or misconduct is the ground of liability for injuries, and such negligence or fault must have proximately caused or contributed to the accident. An antecedent act of negligence is remote when, notwithstanding, the other vessel can by the exercise of ordinary care, avoid the collision. It is not necessary that a vessel actually come into collision with another to charge her with liability for injury; if her negligence or misconduct proximately caused the injury, she is liable, as where a vessel, by her faulty maneuver, forced another into collision with a third vessel, or where by her negligence or violation of the rules of navigation she is the cause of another's running aground.

The non-observance of the statutory rules of navigation is itself a fault rendering the vessel liable where it contributed to the collision, but it is no ground for holding a vessel liable unless such violation in some way either contributed or could possibly have contributed to the collision. The fact that the vessel did not have a licensed pilot, engineer, master or mate or was engaged in a coasting trade without a license, or was at anchor in violation of a local law, will not make her liable or prevent her recovery for injuries received, where the violation of the law in no way contributed to the collision. Thus only such vessels can invoke the violation of a state statute requiring vessels to keep as near as possible to the middle of a river, as an actionable fault, as have been prejudiced by it, either because their own movements have been embarrassed by the presence of the offending vessel or because, in ignorance of her presence, they have omitted to take some precaution by which they might otherwise have avoided danger.

It is a leading principle of the admiralty law that the rules of navigation which it prescribes must be effectively, promptly, energetically and faithfully executed. To constitute misconduct in the management of a vessel it is not necessary that the conduct should be intentionally wrongful. The maritime law is rigid in exacting unrelenting vigilance and care on the part of those intrusted with the navigation of vessels of every kind to avoid collision. Tides



and current must be known and vessels must guard against them. Hazardous maneuvers must not be attempted, and a vessel approaching another must pursue a consistent and steady course, and be vigilant to discover faulty maneuvers of the other, and she must take all means in her power to avoid a collision. The master of a vessel is not, however, held to the highest degree of care. He is only bound to take all such precaution as a man of ordinary prudence and skill, exercising a reasonable foresight, should use to avert danger in the circumstances in which he may happen to be placed. And where he takes such precaution his owners are not held responsible because he may have omitted some possible precaution which the event suggests he might have resorted to.

Ordinary care and caution and due nautical skill are not absolute terms. They are relative and depend in a high degree upon the circumstances which invoke their exercise. Due care and caution are what are reasonable in the condition in which the vessel is placed. What is ordinary and reasonable in the conduct of a steamboat in the open sea, may be great imprudence and even recklessness in a place or under circumstances in which error or mistake would probably be destructive to herself and other vessels whose proximity might reasonably be expected.

While vessels moored at piers must be of sufficient strength to bear without injury the ordinary pressure or contacts which may be reasonably expected to come upon them from vessels moored or landing alongside, it is no defense to a suit for damage that no loss would have been sustained if the injured vessels had been stronger; and the fact that the injured boat was a weak one affords no protection to the defendant, if the collision happened through his carelessness.

(To be continued.)

#### IMPROVEMENT OF MISSISSIPPI.

The project for a deep water way from the great lakes to the gulf of Mexico has been thoroughly investigated by the United States water ways commission, which completed its trip from St. Louis to New Orleans by boat. An immense amount of data was gathered en route.

Chairman Theodore F. Burton announced that no expressions of opinion are now ready, but that a convention will probably be held next January at Washington to aid the commission to obtain further informa-

tion for use in forming recommendations.

From talks with the members, it was learned that some of them were much impressed by the absence of shipping on the Mississippi river. They noted the infrequency with which they met other craft, also the fact that many river towns have almost no dock facilities, and that these towns have given up to railroad use the ground which might have been used for river shipping purposes. Mr. Burton gave out the following statement:

"This commission was created not merely to study the subject of navigation, but also to report upon the waters of the country as related to national development and the conservation of natural resources. The subjects to be considered include water supply, clarification of streams, water power, and all the varied uses of waters in connection with irrigation, power, reclamation, flood prevention, forests, and the public lands.

"It is not the intention of the commission to report on any specific improvement in the rivers of the country, but only on questions of general policy.

"The members of the commission have held meetings daily while on board the boat. A considerable range of topics has been considered, but the members do not feel ready to announce any conclusions. Indeed, it is desired that all subjects be very maturely considered before any report is made."

Mr. Burton said that the increase or decrease of traffic and the condition of navigation and levees were among the subjects investigated.

#### ITEMS OF GENERAL INTEREST.

The net profits of the French Line increased from \$2,000,000 to \$2,800,000 during 1906. A dividend of 6 per cent was declared.

The lighthouse of Pointe De La Coupre at the entrance of the Garonne, which was 180 ft. high, fell on May 22, being undermined by the sea.

The Oceanic Steamship Co.'s liner Sonoma, which formerly ran in the Australian service, has been chartered by the Pacific Coast Steamship Co. of Seattle to replace the steamer Queen, which is awaiting repairs at the Union Iron Works.

The Houston Marine Club, Houston, Texas, has been formed with H. B. Rice, Charles Dillingham, John H. Kirby, F. A. Reichardt, F. A. Heitmann, J. H. B. House and Harvey T. D. Wilson as the leading spirits. Their object is to interest commerce in the

improvement of the Buffalo bayou ship canal.

The Centennial Mill Co. Seattle, Wash., has entered into an agreement with the Jebesen Steamship Line, Hamburg, Germany, to establish a line of steamers to trade between Seattle and the Orient. Three vessels will be put on the run, making regular trips. The steamers Tolosan and Eva are two of the vessels which are to be used in this service and a third will be added later, making the total net tonnage employed about 6,500 tons.

The submarine boats Pike and Grampus are to have alterations which will embody the results of more recent experience, and which will greatly increase their factor of safety. Larger batteries will lengthen their period of possible submersion to three hours and bilge keels will enable the crew to move about with greater freedom without altering the position of the vessel. Hooks are to be placed on the sides to provide for the hauling of the vessels to the surface in case of accident.

The Allan line is to make another addition to its fleet. It has recently placed an order for a new 10,000-ton liner, to be called the Hesperian. The Grampian, a sister ship, is being built, and the Corsican is expected to be ready for service in July. The Hesperian is intended for the Glasgow and Boston service. None of these vessels is to be fitted with turbines, reciprocating engines being employed in each case.

Capt. M. L. Francke, master of the Dakota, lost on Osaka reef last February, has had his master's license suspended for two and one-half years. The board of steamboat inspectors expressed their astonishment that a man of Francke's standing took no soundings or bearings when he knew he was in the presence of a reef. The board states that the captain's excuse that he was anxious to avoid a strong current and was eager to reach Tokio bay before dark, did not justify him in steering so fine a course when he had a valuable ship and cargo under his control.

Columbus Dill of the Ashton Valve Co., 271 Franklin street, Boston, Mass., was in the great lakes district last week on behalf of his company. Ashton pop valves are on a large percentage of the steamers on the great lakes.

The five-masted schooner Fannie Palmer, building by Percy & Small, Bath, Me., for William F. Palmer, Boston, was launched May 25.

## PERSONAL MENTION.

James Cowley, of St. Clair, Mich., is wheeling on the Superior City.

Andrew Manion, of Milwaukee, is second assistant on the Shaughnessy this season.

Wm. F. Zentgrebe, of Fairhaven, is second assistant on the steamer Poe this season.

Frank Murphy, assistant engineer of the Shaughnessy, was on the S. J. Murphy last year.

Homer Johnson, wheelsman on the Zenith City last season, is on the H. L. Shaw this season.

Ed. Burlow, who was on the Harlem last season, is second mate of the Cambria this season.

Harry Ashby, of Duluth, is back on the job as second mate of the steamer Alexander McDougall.

Al. Marcero, oiler on the Shaughnessy, was oiling last season on the Linn with Harmon Dupont.

Wm. E. Swartz, Myng P. O., Ont., who is wheeling on the Lake Shore, was married during the winter.

George Huckle, who was mate on the steamer Corsica last season, is mate of the Mataafa this year.

A. C. Mosier, who was mate of the Houghton last season, is on the Shaw this year. He starts from Cleveland.

Allen C. Joyce, first assistant on the steamer Frick last season, is in the same position on the Poe this year.

Donald McKay, of Cleveland, who was mate on the steamer Mariposa last season, is mate of the Poe this year.

F. D. Cahoon, of Port Huron, is first assistant on the Shaughnessy this season with A. P. Stewart, chief engineer.

George Emery, second assistant on the steamer Alexander McDougall in 1906, is assistant engineer on the John W. Gates.

Fred and Albert Brooker, two Amherstburg sailors, are wheeling and watching on the steamer O. P. Wright.

Carl Anton, of Put-in-Bay, is putting in his second season as second mate of the S. J. Murphy. He has been sailing eight years.

J. H. Ingram, Marine City, is mate of the steamer John W. Moore. He has been with Capt. J. L. Bradshaw several years.

James Wixson, of Avoca, Mich., who decked on the steamer Australia last season, is watching this year on the steamer J. T. Hutchinson.

Charles Ferguson, second mate, who is a brother of Capt. John A.

Ferguson, of the Cort, is sailing on the Poe again this year.

John Conelly, Pittsburg, who is firing on the steamer Rockefeller, has sailed for 20 years and has a record for sticking on one boat all season.

Roy Stork, 78 Milwaukee avenue east, Detroit, wheeled on the steamer C. Tower, Jr., all last season and liked it so well he is back again this season.

Geo. Heldt, oiler on the Poe, started decking on the Sevona, broke in as a fireman on the same boat and went oiling on the Poe a year ago.

Orton J. McGaw, mate of the Australia last season, is aboard the steamer J. T. Hutchinson this season. Orton joined the ranks of the benedicts last winter.

Capt. William P. Benham, who is scheduled for the John J. Sullivan, Hutchinson's new boat, took the John Stanton out of Ashtabula on her first trip up.

James G. Herbert, mate of the Ericsson last year, is mate of the S. J. Murphy this season. He is a son of Capt. Herbert, of the light house tender Warrington.

Guy W. Webb, who was first assistant on the steamer Alexander McDougall last season, is second engineer on the steamer Mataafa this season with Chief Engineer John Conroy.

Charles Martin, of Milwaukee, who has only had his pilot's papers two seasons, is beginning his second season as second mate of the steamer C. Tower, Jr., with Capt. Frank S. Ellis.

Capt. G. E. Anderson, master of the Hendricks S. Holden, brought the first ore cargo for 1907 to Ashtabula. It was loaded at Escanaba and it took about a week to put it aboard.

Charles Brenner, of Marine City, is starting his second season as second engineer of the steamer C. Tower Jr. E. Ellsworth, of Cleveland, is chief of the Tower, this being his second season on the same boat.

The Gillen Dock & Dredge Co. has secured the contract for extending the breakwater at Milwaukee. It will take two years to complete the job. The approximate cost of the work will be in the neighborhood of \$150,000.

Robert Pyette, who was wheeling on the steamer Siemens last season, is now second mate on the Canadian steamer Scottish Hero. Robert lives at Owen Sound, being one of a numerous marine contingent at that port.

Geo. Helat, Romeo, Mich., who is oiling on the steamer Poe this season, started sailing on the ill-fated Sevona as a deckhand. He decked three trips and has been firing ever since. He started oiling on the Poe.

Conrad Christiansen, who wheeled on the steamer Alexander McDougall last season, was given pilot's papers last winter at Cleveland and he is now looking for a berth as second mate. Every one who ever sailed with him speaks well of him.

Capt. Chas. A. Heaton, wearing a vandyke beard which makes him look like a Philadelphia lawyer instead of a skipper, took out the John Stanton on her last run up the lakes from Ashtabula. Capt. Heaton has been ill all winter, but now bids fair to entirely recover.

Harry Wolf, of Port Huron, is oiling on the James J. Hill this season. He has been sailing six years, starting out on the Peshtigo. He has been on the Duncan, Mary McGregor, Kensington and Bransford. He worked as an oiler for the first time on the Kensington last fall.

John Schei, who was oiling on the Alexander McDougall in 1906, is working in the same capacity on the steamer Mataafa. Jalma Soderberg, who fired her all season, is also on the Mataafa. The McDougall's old chief, James Inman, is chief of the John W. Gates this year.

Nathan B. Roach, of Sombra, Ont., which is sometimes referred to by the marine fraternity as East Marine City, is mate of the John Stanton. He was on the steamer Wm. A. Paine last season. Mr. Roach has a crew of clever young mariners who all work with him and thereby attain good results.

Nick McLaughlin, who was mate of the Howard L. Shaw last season, is mate of the steamer Superior City this year. McLaughlin and Capt. Harry G. Harbottle invested in the old Swain last winter, but they have not yet decided what trade they will put her in, or just how much of a rebuild they will give her.

John Nahrstedt, master of the steamer Alexander McDougall, is so handy in a mechanical way, there is little he can not do. When he goes back to his home at Owen Sound in the winter time, he employs his time by laying bricks, cutting stone and doing carpenter work. His mechanical ability is very varied.

Capt. Wm. Tomlin, master of the steamer Wm. E. Reis, has a bunch of high school students decking for him this season. One of his sons is also acting as second cook. The young fellows left high school at Marine City on account of a change in superintendents. Capt. Tomlin received his young son—as tradition says, the prodigal son was received—with open arms.